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MYTHOLOGY, RELIGION, LITERATURE & ART

FROM THE GERMAN OF

DR. OSKAR SEYFFERT

REVISED AND EDITED, WITH ADDITIONS, BY

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WITH MORE THAN 450 ILLUSTRATIONS

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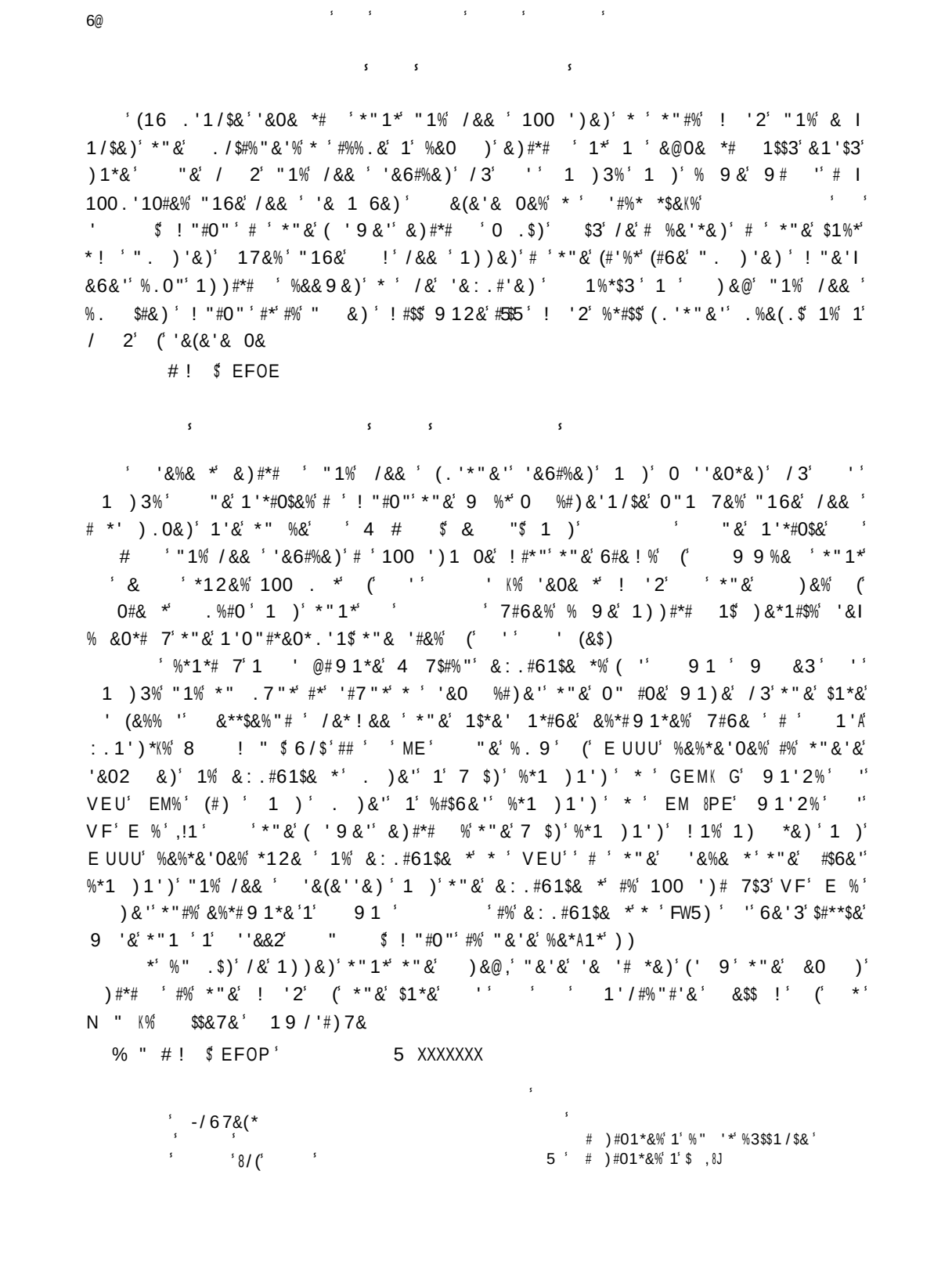

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statues is that at Paris (from the Villa Borghese), though many take it for an Ares.

(2) *Tatĭus*, a Greek mathematician of the 3rd century A.D. He wrote an introduction to the *Phænomena* of Arātus.

(3) *Achillēs of Alexandria*, about 450 A.D., probably a Christian; author of a Greek romance in eight books, the story of Cleitŏphōn of Tyre and Leucippē of Byzantium, two lovers who pass through a long train of adventures before they meet. As the whole story is put in the mouth of the hero, many scenes, being told at second-hand, lose in liveliness; and the flow of the narrative is checked by too many digressions, some interesting enough in themselves, by descriptions of places, natural phenomena, works of art, feelings and passions, in which the author exhibits his vast reading. The style has considerable elegance, though often marred by an affectation of neatness and brevity. The novel continued to be popular until the fall of Byzantium.

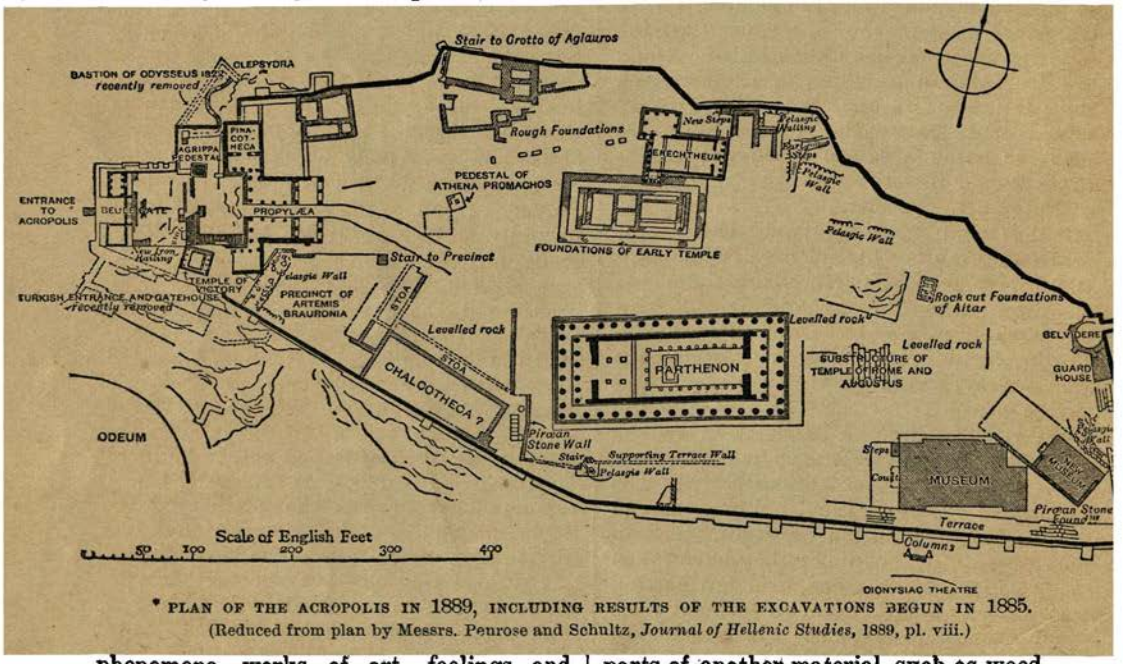
Acontius (Gr. *Akontĭŏs*). *See* CYDIPPE.

Acrātisma (Gr. *Akrātisma*). *See* MEALS.

Acrĭsĭus (Gr. *Akrĭsĭŏs*). King of Argos, great-grandson of Dănăus, son of Abas, and brother of Prœtus. An oracle having declared that a son of his daughter Dănaē would take his life, he shuts her up in a brazen tower; but Zeus falls into her lap in the shape of a shower of gold, and she bears a son named Perseus. Then mother and child are put in a wooden box and thrown into the sea, but they drift to the island of Serīphus, and are kindly received. Perseus, having grown into a hero, sets out with his mother to seek Acrisius, who has fled from Argos for fear of the oracle coming true; he finds him at Larissa, in Thessaly, and kills him unawares with a discus.

Acro (*Hĕlĕnĭus*) A Roman grammarian of the end of the 2nd century A.D. He wrote commentaries (now lost) on Terence, Horace, and perhaps Persius. The collection of scholia bearing his name dates from the 7th century.

Acroliths. Statues whose uncovered extremities are made of stone, the covered parts of another material, such as wood.



PLAN OF THE ACROPOLIS IN 1889, INCLUDING RESULTS OF THE EXCAVATIONS BEGUN IN 1885.
(Reduced from plan by Messrs. Penrose and Schultz, *Journal of Hellenic Studies*, 1889, pl. viii.)

Acrŏpŏlis (Gr. *Akrŏpŏlis*). Properly = Upper Town. The Greek name for the citadel or stronghold of a town. The Acropolis of Athens was situated on a plateau of rock, about 200 feet in height, 1,000 in breadth from east to west, and 460 in length from north to south. It was originally called Cĕcrŏpĭa, after Cecrops, the ancestor of the Athenians, whose grave and shrine were shown on the spot. On the north side of the Acropolis was the Erechthēum, the common seat of worship of the ancient gods of Athens, Athēnē Pŏlĭās, Hephæstus, Poseidōn, and Erechtheus himself, who was said to have founded the sanctuary.

#%' " #%& A&3' 7/33!<;5' ' /,' .2*' (*-2'" .2*06 ' !3!3.(J.03' ;!D*' .2*' &4-!*4.'D!4>3' 2&1' 2!3' (*3!1*4-*' /4' .2*' -(/7/;!3' &41' 6&5' 2&=*' &11*1' .2*' 3.5;/<&.*' ./' .2*' .*67;*' /,' .2*4*' (*-*4.;5' !1*4.!,!*1' ' /,' .2*' \B*-2'" .2*06' 2*' A&;;3' /,' .2*' ,/(.(*33' 7(/7*(' A*(*' 1*3.(/5*1' !4' .2*' *(3!&4' A&(3' CRN' &41' CUT' 4 ' &41' (*3./(*1' <5' !6/4' 0.' .2*' A&;;' 30((/041!4>' .2*' ,//.' /,' .2*' 2!;;' -&;;*1' .2*' , 1 "' /(' , 1 " ' &41' 3077/3*1' ./' <*' &' (*;!-' /,' .2*' /;1*3.'!42&<!F .&4.3' A&3' ;*,.' !4' (0!43' !6/4' &;3/' ;&!1' .2*' ,/041&.!/4' /,' &' 4*A' .*67;*' /,' .2*4*' /4' .2*' 3/0.2' 3!1*' /,' .2*' 2!;;' 2!3' .*67;*' A&3' <*>&4' &,(*32' &41' -/67;*.*1' !4' .2*' 6/3.' 37;*41!1' 3.5;*' <5' *(!-;*3' &41' -&;;*1' .2*' &(.2*4/4' & *$*(' *(!-;*3' &.' .2*' 3&6*' .!6*' &1/(4*1' .2*' &77(/&-2' ./' .2*' A*3.' 3!1*' /,' .2*' -(/7/;!3' A!.2' .2*' >;/(!/03' , ' &41' <*>&4' ./' (*<0!;1' .2*' (*-2.2*06'!4' 6&>4!,!-*4.'3.5;*' # ' $ ' '$)0 +&(2*(*' A*(*' 3*=*(&;' /.2*(' 3&4-.0&(!*3' /4' .2*' -(/7/;!3' .2&.' ,/(' !43.&4-*' /,' (. 6!3' (&4(/4;&' /4' .2*' '3!1*' /,' .2*' (/75;3*&" .2*' <*&0.!,0;' ;!..;*' .*(5.;*' /,' .2*4*' !D*' ./' .2*' " &41' .2*' &41(13*06'&1K/!4!4>' .2*' .*67;*' /,' (*-2.2*03' 2*(*' A*(*' 6&45' &;.&(3' .2&.' /,' L*03' 57 . 3' ,/(' *0&67;*' &41' -/04.;*33'3.&.0*3&6/4>'.2*'6'.2&./,' .2*4*' (16 -213' A!.2' = .!=*' /,,*(!/>3' 6/4>' .2*' 406*(/03' >(/../3' !4' .2*' (/-D' /4*' /4' .2*' 4/(.2'3!1*' A&3'1*1!-&.*1'./' &4'&4/.2*(' ./' 7/;;/ -.&' 2*' &.!4'.*(6',/(' /, -!&;' (*-/(13' /,' .(&43&-.!/43' !4-;01!4>' ' " 2 ' &41' ' ' . " ' </.2' *3.&<;!32*1' <5' &*3&(' !4' 2!3' ,!(3.' -/430;32!7' 4 ' VT' 8$9' ' " ' &*3&(3';&A'1*-(**1'.2&.'&;;' .(&43&-.!/43' /,' .2*' 3*4&.*' 32/0;1' <*' (*>0F ;&(;5'A(!..*4'1/A4'&41'70<;!32*1'A2!-2'2&1' /4;5'<**4'1/4*'2!.2*(./'!4'*0-*7.!/4&;' -&3*3' 2*' A(!..*4' (*7/(.3' A*(*' -/4.!40*1'0!4*(' .2*' 67!(*'<0.' 0>03.03'70.'&'3./7' ./' .2*!(' 70<;!-&.!/4' 2*3*' 1/-06*4.3' A*(*' 7(*F 3*(=*1'&6/4>'.2*' 3.&.*' &(-2!=*3' &41' !4' .2*' 70<;!-' ;!<(&(!*3' A2*(*' .2*5' -/0;1' /4;5'<*' !437*-.*1' <5' 7*(6!33!/4' /,' .2*' -!.5' 7(*F ,*-.' .',!(3.' &' .*67/(&(5' 10.5' !67/3*1' /4' !41!=!10&;' 3*4&./(3' .2*' <03!4*33' /,' (*7/(.!4>' >(*A'!4./' &' 3*7&(&.*' /,,!-*' 2*;1' !4' (/.&.!/4' A!.2' .2*' .!.;*' /,' (' ' " ' &41' .2*' /,,!-*(' 2/;1!4>' !.' 2&1' &' -/43!1*(&<;*' 3.&,.' /,' (!.*(3' 041*(' 2!6' -&;;*1' $ 3' 8@9' 2*' # " ' ' & " " ' /(' ' ' ' 4' " ' ' /(' 3!67;5' ' /(' 5 " ' A*(*' &4' /,,!-!&;' 1&!;5' -2(/4!-;*' %A2!-2' !4' &11!.!/4' ./' /,,!-!&;' (*7/(.3' /, *=*4.3' !4' .2*' !67*(!&;' ,&6!;5' &41' 3.&.*' &41' -!.5' &,,&!(3' -/4.&!4*1' (*;&.!/43' <5' .2*' 6&>!3.(&.*3' .(&43&-.!/43' &41' 1*-(**3' /,' .2*' 3*4&.*' &--!1*4.3' &41' ,&6!;5' 4*A3' -/6604!-&.*1' ./' .2*' *1!./(3' 2*5' A*(*' 70<;!-;5' *02!<!.*1' /4' & GA2!.*4*1' </&(1' # ' A2!-2' &45' X6*' 6!>2.' (*&1' &41' -/75'" &41' .2*(*' A*(*' 6*4' A2/' 6&1*' & <03!4*33' /,' 60;.!7;5!4>' &41' .(&436!..!4>' 30-2' 4*A3' ./' .2*' 7(/ !4-*3' ,.*(' &'.!6*' .2*' /(!>!4&;3' A*(*' 7;&-*1' &6/4>' .2*' 3.&.*" &(-2!=*3',/(' .2*' <*4*,!.'/,'.2/3*' A2/' A!32*1' ./' -/430;' .2*6 " ' /4'/,' (!3.&*03<5' 0. 41*' .2*' 1&0>2.*(' /,' &1603',' 2*<*3' A&3' .(&!4*1' <5' 2!(4' !4./' &' ,!4!32*1' 204.36&4' &=!4>' *!.2*(' 3**4' (. 6!3' 8 !&4&9' A2*4' <&.2!4>' /(' </&3.*1' 2!3' 30F 7*(!/(!.5' !4' .2*' -2&3*' 2*' A&3' -2&4>*1' <5' 2*(' !4./' &' 3.&>' &41' ./6' ./' 7!*-*3' <5' 2!3' /A4' 2/0413' /4' /04.' ,!.23*(/4' 2*' 2/0413';//D*1'*=*(5A2*(*',/(' .2*!(' 6&3.*(' &41' A/0;1' 4/.' <*' 7&-!,!*1' .!;;' 2!(/4' 32/A*1'.2*6'&4'!6&>*' /,' 2!6' !3'3.&.0*' A&3' /,.*4' 3*.' 07' /4' 2!;;3' &41' (/-D3' &3' &' 7(/.*-.!/4'&>&!43.'.2*'1&4>*(/03'2*&./,'.2*' 1/>"1&53' /,' A2!-2'7(/<&<;5'.2*' 65.2'!.3*;,' !3'<0.'&'356</; * '#)%&' 0* '# &%' ' . $ $ # -.0D(!43' ' -5(& -43!;J.;3' ' $1$1 &) 16*./3' /4' /,' 2 (*3' D!4>' /,' 2 (3*' !4' 2*33&;5' A2/' .//D' 7&(.' !4' .2*' &;5"' 1/4!&4' </&("204.' &41' .2*' =/5&>*' /,' .2*' (>/' 7/;;/' 3*(=*1' 2!6' ,/(' &' .!6*' &3' &' 32*72*(1'*!.2*(',/(6' ;/=*' &41' &3' &'(*A&(1' ,/(' 2!3' 7!*.5' /(' ./' *07!&.*' &'-&7!.&;' -(!6*' 2*4' 16*.03'A//*1' ;-*3.!3' .2*1&0>2.*(' /,' *;;&3'&41'2*(',&.2*('A/0;1'/4;5'>!=*' 2*(' ./' /4*' A2/' 32/0;1' 5/D*' ;!/43' X61' </&(3' ./' &'-2&(!/.' 2*' ,0;.!;;*1'.2*' .&3D' A!.2' 7/;;/ 3 2*;7' !41**1' .2*' >/1'*=*4'7(*=&!;*1'/4'.2*' /!(&!' ./' (*;*&3*' 2!6',/(6'1*&.2'7(/=!1*1' .2&.'&45'/4*'A/0;1'=/;04.**(' ./'1!*',/(' 2!6' *' !3'&.';*4>.2'3*!0*1' A!.2'&'6/(.&;' !-D4*33' &41' 2!3'&>*1'7&(*4.3'(*,03!4>' ./'>!=*' 07'.2*' (*64&4.'/,'.2*!(' 1&53',/(' 2!6' ;-*3.!3'1!*3' ,/(' 2*(' 203<&41' <0.' !3' 3*4.' <&-D' ./' .2*' 077*(' A/(;1' <5' *(3?72N4*' /(' &--/(1!4>' ./' &4/.2*(' 3./(5' !3'(*3-0*1' /0.' /,' .2*' 2&413' /,' &1*3' <5' *(&-;*3 1/4!3' 7(04>' &--/(1!4>' ./' .2*' -/6F 6/4' ;*>*41' ,/(6' .2*' 044&.0(&;' ;/=*' /,' .2*' 57(!&4' 7(!4-*33' 5((2&' 8/(' 65,.!&9' ,/(' 2*2' ,&.2*(' !45(&3' A2/' /4' <*-/6!4>' &A&(*' /,' .2*' -(!6*' 70(30*3' 2*(' A!.2' &3A/(1'' <0.' 32*' 7(&5!4>' ./' .2*' >/13' !3' -2&4>*1' !4./' &' 65(.;*' /0.' /,' A2/3*' <&(D' 37(!4>3' .2*' <*&0.!,0;' 1/4!3' .2*' <*;/=*1

/,' 72(/1!.*' 2!;*' 5*.' &'5/0.2' 2*' 1!*3' A/041*1' <5' &' </&(' !4' 204.!4>'' .2*' >/1F 1*33' !4-/43/;&<;*' 6&D*3' .2*' &4*6/4*' >(/A' /0.' /,' 2!3' <;//1' 3' 32*' A!;;' 4/.' >!=*' 07' 2*(' 1&(;!4>' &41' *(3 72/4*' 2&3' ,&;;*4' !4' ;/=*' A!.2' 2!6' L*03' 1*-(**3' .2&.' 2*' 32&;;' 7&33' 2&;;' .2*' 5*&(' A!.2' /4*' &41' 2&;;' A!.2' .2*' /.2*(' >/11*33' 1/4!3' 8'_';/(19' A&3' 7(/7*(;5'&' 5(!&4'>/1'/,'4&.0(*' &' .57*' /,' =*>*.&.!/4' A2!-2' &,.*(' &' <(!*,' <;/33/6!4>' &;A&53' 1!*3' &>&!4' 2*' 65.2' A&3' *6</1!*1' !4' &' 5*&(;5' *&3.' /,' 1/4!3' 2*;1' <5' A/6*4' A2!-2' 3.&(.!4>',(/6 5<;/3' !4' 5(!&' .2*'-(&1;*'/,'.2!3' A/(32!7' -&6*' <5' A&5' /,' 57(03' ./' 3!&' !4/(' &41' (**-*' .2*4' 041*(' .2*' ./;*6!*3' ./' >57.' &41' !4'.2*'!67*(!&;'&>*'./' /6*' 2*4'.2*'(!=*(' 1/4!3' <5' 5<;/3' (&4' (*1' A!.2' .2*' 3/!;' A&32*1'1/A4',(/6' *<&4/4'<5'.2*'&0.064' (&!4'.2*5'3&!1' 1/4!3' A&3' 3;&!4'<5'.2*'</&(' !4' .2*' 6/04.&!43'&41' .2*' A&.*(' A&3' 15*1' A!.2' 2!3' <;//1' 2*4'.2*' A/6*4' 3*.' /0.' ./' 3**D' 2!6' &41' 2&=!4>',/041' &',!>0(*' .2&.' .2*5' .//D' ./' <*' 2!3' -/(73*' 7*(,/(6*1' 2!3' ,04*(&;'(!.*3' A!.2' ;&6*4.&.!/43' &3' A!;1' &3' .2*' (*K/!-!4>3' .2&.' ,/;;/A*1' /=*(' 2!3' (*'' 30(!*-.!/4' A*(*' ;!-*4.!/03' 2*' ,*&3.' A&3' 2*;1' !4' .2*' &3.' A!.2' >(*&.' 6&>4!,!-*4-*' 4' (**-*' .2*'-*;*<(&.!/4' A&3' 60-2'3!67;*(' &';*&1!4>',*&.0(*' <*!4>' .2*' ;!..;*' H' 1/4!3'' >&(1*43 I' =!Q' 7/.3' 2/;1!4>' &;;' D!413' /,' 2*(<3' .2&.'-/6*' /0.' :0!-D;5'&41'&3' :0!-D;5' ,&1*' A2!-2' A*(*' ,!4&;;5' .2(/A4' !4./' .2*' A&.*(' .' .2*' -/0(.' /,' ;*0&41(!&' &' ,!>0(*' !4' -/3.;5'&77&(*;' A&3' 1!37;&5*1' /4' &' 3!;=*(' <!*(' &41' .2*' 4*0.' 6/6!4>' -&((!*1' !4' 7(/-*33!/4' <5' .2*' A/6*4' ./' .2*' 3*&' &41' -/66!..*1' ./' .2*' A&=*3' 4' 6/3.' 7;&-*3' .2*' ,*&3.' A&3' 2*;1' !4' .2*' 2/..*3.' 3*&3/4

1/7.!/4' 8$9' .' ('' &1/7.!/4'.//D' 7;&-*' *!.2*(' !4' .2*' &1/7.*(3' ;!,*.!6*' /(' <5' A!;;'' /(' &>&!4'!,' &' 6&4'1!*1'-2!;1;*33' &41' !4.*3.&.*' .2*' .&.*' !4.*(,*(*1'./'<(!4>' !4./' 2!3' 2/03*' .2*' 6&4'4*0.'*4.!.;*1'<5'.2*' ..!-;&A' /,'!42*(!.&4-*' &3' 2*!(' &41' &1/7.!=*' 3/4' 3/' .2&.' .2*' (&-*' &41' .2*' (*;!>!/03' (!.*3' 7*-0;!&(' ./' !.' 6!>2.' 4/.' 1!*' /0.' /4*' <0.' .2*' !41*7*41*4.'-!.!Q*4'/,'(*37*-.&<;*' -2&(F &-.*(' -/0;1' &1/7.' &41' 2*' /4;5' A2!;*' 2*' A&3' &3' 5*.' A!.2/0.' 6&;*' 2*!(3' ,' .2*(*' A*(*' 1&0>2.*(3' /4*' /,' 2!3' 1!=!4*' A!4>*1' 3.**1' (*!/4' *(' 5*&(3' &,.*(' A!.2' .2*' 3/43' /,' .2*' 3;&!4' .2Y' 6&;*' 2*!(' A&3' </6' 2*' &41' .2*' &1/7.*1' 2&1' *:0&;' (!>2.3

8@9' .' 7' .2*(*' A*(*' .A/' D!413' &1/7.!/4' </.2' (*:0!(!4>' .2*' &1/7.*(' ./' <*' &' 6&;*' &41' -2!;1;*33' 1' &41

1/7.!/4' 7(/7*(' 2*' ,/(6*(' -/0;1' /4;5' .&D*' 7;&-*' A2*(*' .2*' 7*(3/4' ./' <*' &1/7.*1' A&3' !41*7*41*4.'# '8' &41' 2!3' &1/7.*(' 2&1' 4/' 7(/37*-.' /,' 6&;*' /,,37(!4>'' &.' .2*' !43.&4-*' /,' .2*' 7/4.!,*0' &41' &,.*(',!!;;' 7(//,' /,' &16!33!<!;!.5' !.' 2&1' ./' <*' 3&4-.!/4*1' <5' .2*' BK/6!.!&' -0(!&.' 1/7.!/4' 7(/7*(' &77;!*1' ./' .2/3*' 3.!;;' 041*(' 7&.*(4&;' (0;*' # ' ' .2*' ,&.2*(' 3*;;!4>' 2!3' 3/4' <5',/(6&;' '' &' ./' .2*' &1/7.*(' A2/' .2*4' .2*' 7&.*(4&;' 7/A*(' <*!4>' .20*' &</;!32*1' -;&!6*1' .2*' 3/4' <*,/(*' .2*' -/0(.' &3' 2!3' /A4' &41' .2*' ,&.2*(&;;/A*1' 2!6' ./' <*' &1K01>*1' ./' 2!6' 5' *!.2*(' .(&43&-.!/4' .2*' 7*(3/4' &1/7.*1' 7&33*1' -/67;*.*;5' /=*(' !4.-' .2*' ,&6!;5' &41' (&4D' /,' .2*' &1/7.*(' &41' 4&.0(&;;5'.//D' 2!3' 4&6*' !4' ,0;;' <0.' A!.2' .2*' &11!.!/4' /,' &3*-/41' 1'' '' ',/(6*1' ,(/4' 2!3' /A4' ,/(6*(' '' '' 1' '' <5' .2*' 30,! M' 2' '' 1' 0<;!03' /(4*;!03' -!7!/' ,,;6!;!' &403' 83/4' /,' 0-!03' ,,;6!;!03' &0;;039' /6*4' .//' -/0;1' <*' &1/7.*1' <0.' 4/.' &((/>&.*1'4*!.2*(' -/0;1'.2*5'&1/7.' .' .2*' ;&..*(' *41' /,' .2*' *70<;!-' A*' ,!41' &' .*3.&F 6*4.&(5' 1/7.!/4' !4' *0!3.*4-*' A2!-2' &.' ,!(3.' ;!D*A!3*' 7(/10-*1' &' -2&4>*' /,' 4&6*' <0.' 4/.' /,' 3.&.03

1(&3.*!&' ' # #

1(&3.03' (&413/4' /,' !&3' 3/4' /,' &; 0&' &41' 53!6J-2*' 4' &' :0&((*;' <*.A**4'.2*' .2(*** 2/03*3' (*!>4!4>'!4' (>/3' .2*' !&4.!13*' *;&6711!13*' &41' (-*.!13*' 2*' !3' 1(!=*(' %/0.' <5' 672!&(&03' A2/' &;3/' D!;;*1' 2!3' ,&.2*(' ,;**3' ./' 2!3' 6/.2*(3' ,&.2*(' D!4>' /;K,<03'/,' ,-5/4'&41'!42*(!.3'2!3'D!4>1/6' 0.' (*-/4-!;*1' ./' 672!&(&03' ./' A2/6' 2*' >!=*3' 2!3' 3!3.*(' (;725;*' 2*' (*.0(43' &41' (0;*3' /=*(' (>/3' 0(!4>'/4*' 3./(65' 4!>2.' &' >(*&.' 3-0,,;*' !3' 2*&(1' /0.3!1*' .2*' 7&;&-*M' .A/' ,0>!.!=*3' /;54*!-*3' 3/4' /;' 8 1!703' /,' 2*<*3' &41' 51*03' 3/4' /;' 8 4*03' /,' ,.;K(1/4' 8/4*' A(&77*1' !4' &;!/4 3 2!1*' .2*' /.2*(' !4' &</&("3D!49' 2&=*' 3/0>2.' (*,0>*' !4'.2*',(/4."-/0(.&41'&(*',!>2.!4>',/(' &' 4!>2.3';/1>!4>' 1(&3.03'-/6!4>',/(.2' (*-/>4!3*3'.2*',0;,!;6*4.'/,'&4'/(&-;*' A2!-2' 2&1' <!11*4' 2!6' 6&((5'2!3' 1&0>2.*(3'./' &;!/4' &41' &'</&(' *' >!=*3' (>*!&'./' /;5F 4*!-*3' &41' *! 7KB;*' ./' 51*03' 7(/6!3!4>' ./' -/410-.' .2/3*' 7(!4-*3' 2/6*' &41' (*!4F 3.&.*' .2*6' !4' .2*!(' (!>2.3' 203' <*>&4' 041*(' 2!3' ;*&1' .2*',&(",&6*1' &41',&.&;' *OF 7*1!.!/4'/,'.2*' "' 1' "' +(' # ' *' &;/4*' *3-&7*3' 1*3.(0-.!/4' <5' .2*' 2*;K' /,' 2!3' 1!=!4*' A!4>*1' 3.**1' (*!/4' *(' 5*&(3' &,.*(' A!.2' .2*' 3/43' /,' .2*' 3;&!4' .2Y' 2*' &>&!4' 6&(-2*3' 07/4' 2*<*3' .&D*3' &4-' 1*3.(/53' .2*' ./A4' <0.' ;/3*3' 2!3' 3/4' &4-

1!*3 /, >(!*, /4 2!3 A&5 2/6 * &, >&(& A2*(* &3 A*:; &3 &. ;-K,/4 &41 .2*43 2* A&3 A/(32!77*1 &3 &2*(/
1=1-&.43 . /6 * 041*(.2* *70<"
;!- &-/67*.*4. ,(!*41 A2/ >&=* 2!3 &1=!-* !4 &;&A"30!.&41 -&6 * !4./ -/0(.!4 7*(3/4 4/. ./ 37*&D 8.2* " 1!1 .2&.9 20./ 3077/(. .2* -&03* <5 2!3 7(*3*4-* 4 .2* !67*(!&; &>* .2* .*(6 A&3 &77;!*1 ./ .2* -/043*; A2/ 7;*&1*1 !4 -/0(.!4 .2* 7(*3*4-* /, .2* 7&(.!*3 ,/(1/!4> A2!-2 2* A&3 &;;/A*1 &,.*(.2* .!6 * /, ;&01!03 ./ .&D* &6/1*(&.* ,**
15.14 4 6&45 (**D .*67;*3 &37&-* 3*. &7&(./3/6*.!6*3 041*(>(/041 &41 /4;5 *4.*(*1 <5 .2* 7(!*3. &2/;5 /, 2/;!*3 #) (
& 2* (*&;6 /, .2* 65.2!- B*.*3 &,.*(A&(13 3077/3*1 ./ <* /;-2!3 /4 .2* 00!4*
,,! 038 (,1,-8VR9 4-*3./(/,.2*2*(/!-
&-!13*3/4 /, L*03 <5 >!4& &1&0B.*(/, .2* (!=*(">/1 3/703 !4 2;!03 A2/6 .2* D!4>/, >/13 !4 .2* ,/(6 /, &4 *&>;* -&((!*1 /,, ./ .2* !3;&41 4&6*1 &,.*(2*(A2*(* 2*(*3/4 A&3 </6 3 D!4>, /,)>;4& 2* (0;*1 .2* 5(6!1743 A2/6 L*03 &.2!3 (*:0*3. -(*&.*1 /0. /, &4.3 8 (: ./ 7*/7;* 2!3 !3;&41 A2!-2 &--/(1!4> ./ /4* 3./(5 A&3 04!42&<!.*1 &--/(1!4> ./ &4/.2*(3.(!-D*4 A!.2 7*3.!;*4-* *;/=*1 <5 .2* >/13 ,/(2!3 7!*.5 A2*4 &1(/0>2. 1*3/;&.B (**-* 2!3 !4.*(-*33!/4 /<.&!4*1 (&!4 ,(/6 L*03 &41 .2* >(&.*,0; (**D3 <0!;. 2!6 !4 >!4& &.*67;* *4-;/3*1 <5 & 6&(<;* A&;; !41&(3& (3 2* 2*;7*1 /3*!1/4 &41 7/;;/ ./ (*&(.2* A&;;3 /, (/5 *(*-.!4>.2&.=*(5 7/(.!/4 A2!-2 A&3 &,.*(A&(13 3-&;*1 <5 2!3 3/4 ;,.6/4 &41 2!3 >(&413/4 */7.<; 603 !3 K03.!-* -&03*1 2!6 &,.*(1*&.2 ./ <* 6&1* &K01>* !4 .2*43 2* A&3 A/(32!77*1 &3 &1*6!>/1 !3 3/43 <5 2!(/4 3 1&0>2.*(41*!3 A*(* *;&6/4 &41 *;*03 .2* 6.2*(3 /, K&0 &41 -2!;;*3 &4/.2*(3/4 2/-03 <5 .2* *(*1! 3&6&.2* A&3 3;&!4 <5 2!3 2&;,"<(/.2*(3 ,/(A2!-2 .2*!(,&.2*(<&4!32*1 .2*6
! 1;;*3 . /6 * .A/3*.3 /, 6&>!3.(&.*3 .2* ;*<*!&4 # /((&41 .2* 0(0;* # 8$9 2* .A/ , " .9 A*(* &77/!4.*1 4 CTC &.2* 3&6* .!6* A!.2 .2* (!<04*32!7 /, .2* ;*<3 &3 3*(=&4.3 /, .2* (!<04*3 &41 &.2(3.7(/<&<;5 4/6!4&.*1 <5 .2*6 .!;; CU$ A2*4 ;!D* .2*6 &41 041*(.2*!(7(*3!F 1*4-5 .2*5 <*>&4 ./ <* *;*-.*1 <5 .2* A2/;* </15 /, .2* ;*<3 2*5 .//D .2*!(4&6* ,(/6 .2* .*67;* # /, .2* 7;*F <*!&4 >/11*33 *(*3 !4 A2!-2 .2*!(/,,!-!&; &(-2!=*3 A*(* D*7. *3!1* .2* -03./15 /, .2* (2 ! &41 &,.*(A&(13 /, .2* " 2 " !. A&3 .2*!(10.5./6&D* &((*3.3 &. .2* <!11!4> /, .2* .(!<04*3 ./ -&((5 /0. .2* 1*&.2"3*4.*4-*3 A2!-2 .2*5 7&33*1 <5 2.!(;!4>.2*-(!6!4&;1/A4 ,(/6.2* &(7*!&4(/-D ./;//D &,.*(.2*!67/(.&.!/4 /,-/6 ./ A&.-2 .2*.(&,,!-!4 .2*6&(D*.3 &41./ /(>&4!Q*&41307*(!4.*41 .2* ;*<*!&4 &41 /6&4 &6*3 !D* .2*.(!<04*3 .2*5 -/0;1 /4;5 <* -2/3*4 ,(/6 .2* </15 /, .2* ;*<3 &41 A/(* 4 <&1>* /, /,,!-* 4/. 3/ 60-2 &3 .2* 1 - *=*4 &,.*(.2*5 <*-&6* &4 &0.2/(!.5 !41*7*41*4. /, .2* .(!<04*3 8@9 2* $! ,(/6 ??A*(* .&D*4 &.,!(3.,(/6 .2* &.(!-!&4 </15 &;/4*3//4 &,.*(,(/6 &.(!-!&43 &41 ;*<*!&43 <5 .0(43 &41 ;&3.;5 ,(/6 *!.2*(;*-.*1 5*&(;5 !4 .2* -/6!.!& .(!<,!.&041*(.2* 7(*3!1*4-5 /, & -/430; .2*5 A*(* ,(/6 .2*,!(3. /,,!-*(3 /, .2* A2(,*7*/7;* .2/0>2 ;/A !4 (&4D .2*5 3&.!4 .2* ,(/6 A2!-2 .2*5 .//D .2*!(4&6* &41 A/(* &3 !43!>4!& .2* 1 - 3 !4 (&4D 3/ !4 .2* *0.*4./, .2*!(7/A*(3 .2*5 3.//1 &</=* .2* ;*<*!&4 1!;*3 <*!4> *4.!.;*1 ./ *0*(-!3* -!=!;K0(!31!-.!/4 !4 6&(D*. A3!" 4* 3 A2*(* .2* ;&..*(-/0;1 /4;5 !6 7/3* & ,!4* 2* ,04-.!/43 /, .2* .A/ A*(* =*(5 60-2 &;!D* -/67(!3!4> 8!9 .2* 307*(!4F .*41*4-*/, !4 .2* 6&(D*. A2*(* .2*5 2&1 ./ .*3. A*!>2.3 &41 6*&30(*3 &41 .2* :0&;!.5 /, >//13 ./ D**7 1/A4 .2* 7(!-*/, 7(/=!3!/43 </.2 <5 7(/2!<!.!=* 6*&30(*3 *37*-!&;;5 &>&!43.(*>(&.*(3 /, -/(4 &41 <5 .2* 70(-2&3* &41 ;!<*(&; 1!3.(!<0.!/4 /, ,//1 # "" " * &41 &3 (*>&(13 .2* 6/4*5"6&(D*. ./ 7(/3*-0.* .2/3* .=2/ .(&43>(*33*1 .2* ;&A3 /, 030(5 8!9 .2* -&(* /, .2* "1 A!.2!4 .2* -!.5 &41 .2* -!(-0!./, & 6!;* /0.3!1* <5 -;*&43!4>7&=!4>&41!67(/=!4>.2*3.(**.3 /(3.!((!4> 07 .2/3* A2/ A*(* </041 ./ 1/ !. " <5 3**!4> .2&. .2* 3.(**. .(&,,!- A&3 04!67*1*1 <5 D**7!4> !4 (7&!(.2* .*67;*3 70<;!- <0!;1!4>3 &41 A/(D3 30-2 &3 3*A*(3 &41 &:0*10-.3 &41 3**!4> .2&. .2*3* ;&..*(&41 .2* ,!(*"&77&(&.03 A/(* !4 A/(D!4> /(1*(" 8!!!9 & 307*(!4.*41*4-* /, ((" ! !4-;01!4> .2* !437*-F .!/4 /, <&.23 .&=*(43 &41 ;/A 2/03*3 .2* 70..!4> 1/A4 /, &;;.2&.*41&4>*(*1 70<;!-/(1*(&41 1*-*4-5 1 >&6*3 /, 2&Q&(1 <(*&-2*3 /, 3067.0&(5 ;&A3 !4.(/10-.!/4 /, ,/(*!>4 (*;!>!/43 *.- " 8!=9 .2* *02!F <!.!/4 /, 6 8/, A2!-2 .2* /6&4 &41 *>&;*43!&4 1*=/;=*1 /4 .2* -4(0;* .2* ;*<*!&4 /4 .2* 7;*<*!&4 61!;*39 .2* 307*("

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=!3!/4 /,,*3.!=!.!*3 &. .2** 7 ; " &41 &.. >&6*3 >!=*4 <57(!=&.* 6*4 2* -/3.. /,. .2* >&6*3 >!=*4 <5 .2*63*;=*3 .2*5 1*,(&5*1 7&(.;5 /4./,& 3.04 3*.. &7&(. <5 .2* .&.*<0.0..*(;5 !4&1*:0&.* ./ .2* ;&(>* 1*6&413 /,. ;&.*(.!6*3 7&(.;5 /0./,. .2* 7(/-**13 /,. ,!4*3 A2!-2 A*(* &;3/ 37*4./ 4 70<;!-<0!;1!4>3 &41 7&(.;5 /0. .2*!(/A4 (*3/0(-*3 203.2* 3*1!;*32!7 <*-&6* &4*07*43!=* ;000(5 &41 !.3 *4K-B(6*4.;*33 &41 ;*33 &--*33!<;* ./ 6*4 /,. 6*4 37*4.! 4 -(*1!<;* 3063 !4 >*..!4> 07 >&6*3 ./ A!4 .2* 7*/7;* 3 ,&=/0(A!.2 &=!*A ./ 2!>2*(2/4/0(3 .2/0>2 .2* 3*1!;*32!7 A&3 4/. 4*-*33&(5 &3 &3.*77!4>"3./4* ./ .2*3* 4 !-*(/3 .!6* .2* ;*>&;* &=/(A!.2 &=!*A ./ 2!>2*(2/4/0(3 .2/0>2 .2* 3*1!;*32!7 A&3 .2!(.5"3*=*4 (/..O : N? .2*!(406<*(A&3 04-2&4>*1 .!;; &*3&(!4 4 0 CC &11*1 .A/ 6/(* .2* ;*<*!&4 .9 $ ./ A2/6 &;/4* .2* "" " &41 .2* 6&4&>*6*4./,. .2* $ A*(* *4.(03.*1 41*(.2* 67!(* .2* /,,!-* /, &*1!;* ;/3. 60-2 !4 !67/(.&4-* <5 3/6* /, !.3 ,04-.!/43 <*!4> 2&41*1 /=*(./ 3*7&(&.* /,,!-*(3 *37*-!&;;5 <5 .2* .(&43,*(*4-* /, !.3 K0(!3B-.!/4 &41 !.3 -/4.(/; /,>&6*3 ./ .2* 7(&*./(3 &41 !.; ,*;;!4./ 30-2 -/4.*67.2&.*=*4 0>03.03 2&1 ./ 6&D* &.*40(* /,!.(/(.2* .(!<04* 32!7 &-/41!.!/4 /, *;!>!<!;!.5 ./ .2* 7(&*./(32!7 &41 30--**1!4>*67*(/(3 /,.*4 2&1 ./ ,!;; !.<5 -/670;3!/4 4 .2* (1 -*4.0(5 !.3**63 ./ 2&=* 1!*1 /0.&;./F >*.2*(

!1!..!43 /(! 1!..;643 2* /=*(3**(/, &.*67;* .2&.2&1 4/7(!*3./,!.3 /A4 & # #(' &;3/&6K("1/6/ & &2 #(/4 &0>2.*(/, &41J(/3A!,* /,.2* 2*<&4 D!4> L*.203 &41 6/.2*(/, .5;03 4=!/03 &.2*(3!3.*("!4";&A !<<* 2&=!4> 3!O 3/43 32* .(!*3 ./ D!;; .2* *;1*3.<0. <5 6!3.&D* D!;;3 2*(/A4 2* !3 -2&4>*1 <5 L*03 !4./ &4!>2.!4>&;* &41 ,/(*=*(<*A&!;3 2*(3/4 &.*(;*>*41 6&D*3 2*(.2* A!,* /, &4 &(.!,!-*(/;5.*-2403 &. ; 72/4!4 51!&" 32* 3.!(3 .2* &4>*(/, *(&<5</&3.!4> .2&.32*;!=*3 6/(* 2&77!;5 A!.2 2*(203<&41 .2&4 .2* >/11*33 A!.2 L*03 *(&3*413 (!3 8 _3.(!,*9 ./ 3*. /4 ,//.&A&>*(<*.A**4 203<&41&41 A!,* .2&. A2!-2*=*(,!4!32*3 ,!(3. .2* 7!*-* /, A/(D .2*5 2&=* !4 2&41 82* &-2&!(32* &>&(F 6*4.9 32&;; 6&D* .2* /.2*(&7(*3*4./, &3;&=*">!(; 5 *(&3 2*;7 *1/4 A!43 &41 /;5.*-2403 !4 =*0&.!/4 ,*.-2*3 2*(3!3.*(2 ;!1 4!3 /4 &,&;3* 7(*.*0. ,(/6 2*(,&.2*(3 2/03* &41 2&=!4>(*10-*1 2*(./ 30<6!33!/4 /4 .2* A&5 &41 </041 2*(./ 3*-(*-5 /4 7&!4 /, 1*&.2 7(*3*4.3 2*(./ 2!3 A!,* 04(*-/>4!3*1 &3 &;3&=* 4* 1&5 *1/4 /=*(2*&(3 2*(3!3.*(;&6*4.!4> 2*(;/.&.* &,/04.&!4B&41 -/4-*(.3 A!.2 2*(./ 3;&5 .5;..3 -/ D 2!6 &41 3*. 2!6 <*,/(* 2!3 ,&.2*(./ *&. 4 ;*&(4!4> .2* .(0.2 /;5.*-2403 70(30*3 .2* 3!3.*(./ 2*(2/6* <0. .2*(* .2* >/13 ./ 7(*=*4.6/(* 2/(((/(3 .0(4 .2*6 &;;!4./ <!(13 6&D!4> &41&(*/3 &4 /37(*5 <!3 A!,* & D!4>,!32*(/;5F .*-2403 & 7*;!-&4 2*;!1/4!3 & 3A&;;/A &41 *1/4 &4!>2.!4>&;* &$ $ * (K *.*3 /4 /, *;!/3 &41 .2* -*&4 45672 *(3*!3 <(/.2*(/, !(-* &41 &3!72&* D!4>/, <,&.2*(/, *1*&41 <3'B.03 <5.2* /-*&4 45672 15!& & 1$*&! #&41 . " &(! >*43 /4 /, &41!14 & @9 &41 *;!& &=!4>A!.2 .2* 2*;7/, 2!3<(/.2*(3 5/43 &;;&3 &41 !303 A(*3.*1 ..!-& ,(/6.2* 3/43 /, 2!3 04-;* /.!/4 A2/ 2&1 1(!=*4 /0. 2!3 ,&.2*(2* 3*!Q*1 .2* 3/;* 3/=*(*!>4.5 *.2(/4*1 <5 2!3 <(/.2*(&;;&3 &41 2!3 3/43 2* A&3 (*3 0*1 &41 (*3./(*1<5 2!3 3/4 2*3*03 & &=!4> 3;&!4 41(>>/3 3/4 /, !4/3 & 2* A&3 -/4:0*(*1<5.2&.*D!4> &41 -/67*;*1 ./ 3*41 3*=*4 5/0.23 &41 3*=*4 6&!1*43 ./ (*.* *=*(5 4!4* 5*&(3 &3 =!-.!63 ./ .2* !4/.&0(2*4 2*3*03 3*. /0. ./ ,(* 2!3 -/04.(5 ,(/6.2!3.(!<0.* 2* &>(**1 !4 -&3* /, 30--*33 ./ *0-2&4>* .2* <;&-D 3&!; /, 2!3 32!7 ,/(' & A2!.* <0. 2* ,/(>/. ./ 1/3/ &41)>*03 3**!4>.2* /;1 3&!; /4 .2* (*.0(4!4> =*33*;' >&=* 07 2!3 3/4 ,/(';/3. &41 .2(*A 2!63*;,' !4./ .2* 3*& A2!-2 !3 3077/3*1 ./ 2&=* <**4 4&6*1 &,.*(2!6 .2* ,,!K>*&4 * 2&1 & ('" /(32(!4* &. .2*43 2!;1;*33 <5 2!3 ,!(3. A/ 6&(F (!&>*3 &41 &3-(!<!4> .2* ,&-./* .2* &4>*(/, 72(11!.* 2* !3 3&!1 ./ 2&=* !4.(/10-*1 2*(A/(32!7 !4./ .2*43 8 /(2!3 3/4 *103 <5 *1*& /2 9 !>;J;* 8 (91 &0>2.*(/, 1" (&3.03 /, (>/3 A!,* /, !/6*1*3 & ;>D;*03 /4 /, 1(&3.03 /, (>/3 &41 /4* /, .2* 7,> 4! 8: 9 A2/ ,*;;<*,/(* 2*<*3 !>!4& &45672 1&0>2.*(/, .2* (!=*(" Y'/1 3/703 &41 <5 L*..3 6/.2*(/,) &-03 : = 9 ! >!4*.&!! -0;7.0(*3 2* 6&(<;* 7*1!F 6*4.3 /, .2*4&3 .*67;* &. ;>!4& 1!3F -/=*(*1!4 $R$$ (*3./(*1<5 2/(A&;13*4 &41 7(*3*(=*1!4.2* ;57./.2*D&. 04!-2 2*!(>(*&. =&;0* -/43!3.3 !4.2* ,0;;;!>2. .2*5.2(/A /4 .2* -/41!.!/4 /, (**D&(. *37*-!&;;5 /, .2* ,! >!4*.&4 3-2//; !4 C>B9 &$!) ! ' (/.2 >(/073

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7(*3*4.'A!.2';!,*;!D*'&--0(&-5'&41'!4'3.(!-.;5'
35 6 6 *.(!-&;' 1!3.(!<0.!/4' -/ 6<&.3' /,' .2*'
(**D3'<*,/(*' (/5'A2!;*' .2*4&' !4' .2*'
-*4.(*'&3'7(/.*-.(*33'/,'.2*' (**D3'(*.&!43'
.2*' (!>!1' &..!.01*' /,' .2*' &4-!*4.'(*;!>!/03'
3.&.0*3' ,' .2*',!>0(*3'/(!>!4&;;5'.A*4.5"'
.A/' !4' 40 6<*(' .*4' !4' .2*' A*3.' 7*1! 6 *4.'
(*7(*3*4.!4>' .2*' -/4.*3.',/(' .2*' </15' /,'
&.(/-;03'&(*' -/ 6 7;*.*'A2!;*' .2*' *;*=*4.2'
!3'7(*3*(=*1'!4',(&> 6 *4.3" /,' .2/3*' !4' .2*'
*&3.' 7*1! 6 *4.' (*7(*3*4.!4>' *(&-;*3' &41'
;& 6 /4' 32!;1!4>' .2*' ,&;;*4' !-;*3',(/ 6'
&1 6 &1/4',!=*'(* 6 &!4'&41' 6 &45',(&> 6 *4.3
>!3' 2*' 3./(6"-;/01' &41' .2041*(F
-;/01' /,' L*43' !6&>!4*1' !4' /6*(' &3' &'
32!*;1',/(>*1'<5' *72&*3.03';<;&Q!4>'<(!>2.F
;5' &41',(!4>*1'A!.2' .&33*;3' /,' >/;1' !4' !.3'
-*4.(*' .2*' &A*"!437!(!4>' /(>/4 3' 2*&1'
2*4' L*03' 32&D*3' .2*' &*>!3'!.' .2041*(3'
&41';!>2.*43'&41'2/(((/('&41'7*(1!.!/4',&;;'
07/4'.2/3*' &>&!43.'A2/ 6'!.'!3';!,.*1' .'!3'
</(4*' 4/.'/4;5'<5'L*03'H'.2*'! >!3"<*&(*(I'
<0.'<5'2!3'1&0>2.*(' .2*4&'&41'/--&3!/4&;;5'
<5' 7/;;/' 3'.2*'3& 6 *'A/(1' 6 *&43'&'>/&.F
3D!4'!.'A&3' *07;&!4*1'!4';&.*('.!6*3'&3'.2*'
3D!4'/,' .2*' >/&.'A2!-2' 2&1' 30-D;*1'L*03'
!4' 2!3' !4,&4-5' .' .2*' <!11!4>' /,' .2*'
/(&-;*' 2*' 1(*A' !.' /=*(' 2!3'.2041*("32!*;1'
!4'.2*' -/4.*3.'A!.2'.2*' !&4.3'&41',&3.*4*1'
/4'!.' .2*' /(>/4 3' 2*&1' 2*4' .2*'&*>!3'
<*-& 6 *'&'3.&41!4>' &..(!<0.*' /,' .2*4&'!.'
A&3'(*7(*3*4.*1'&3'&'3D!4'*!.2*('32&>>5'/('
3-&;5' A!.2' &' ,(!4>*' /,' 34&D*3' &41' .2*'
/(>/4 3' 2*&1'!4' .2*' 6!11;*' &41' *!.2*('
3*(=!4>' .2*' >/11*33' &3' &'<(*&3.7;&.*' /('
2&4>!4>' <*2!41' ./' 3-(**4' .2*' <&-D' &41'
32/0;1*(3' /(' ,&3.*4*1';!D*' &'32!*;1'/4' .2*'
;*,.'&(6

,,!>!3.203' /4'/,' 25*3.*3'&41'2!3'1&0>2F
.*(' *;/7!&' .'2!3'<!(.2' 2*' A&3'*07/3*1'
<5'2!3'6/.2*('&41'<(/0>2.'07'<5'32*72*(13'
!3'04-;*' .(*03'203<&41'./' *;/7!&',!4-K3
2!6'&41'<(!4>3'2!6'./' 5-*4&*'.2!4D!4>'
2!6'./'<*'2!3' /A4'3/4'' <0.' E>!3.203' &41'
B2!3' (*&,'&.2*(' -/4.(!=*' ./' D!;;'2!6'&41'
3*!Q*' .2*' 3/=*(*!>4.5' /,' 5-*4&*' &

! # (' 2!3' 7/3!.!/4' 2*' ;/3*3' &>&!4' <5'
2!3' -/03!4' >& 6 *6 4/4 3' (*.0(4',(/6'*0!;*'
<0.'10(!4>'.2&.' 2*(/3' &<3*4-*' &.' (/5'2*'
3*10-*3' 2!3'' A!,*' ;5.&*6 4*3.(&' &41' "A!.2'
2*(' 2*;7' 3;&53' 2!6' .(*&-2*(/03;5' /4' 2!3'
(*.0(4' 4' .2*' *!>2.2'5*&('&,.*(' .2!3' 1**1'
-/6*3' 5/04>' (*3.*3' &41' &=*4>*3' 2!3'
,&.2*(3'1*&.2'<5'3;&5!4>' ;>!3.203'
! >;*' 4*' /,' .2*' *37*(!1*3'&
! >57.03' /4'/,' *;03'&41'.A!4"<(/.2*('
/,' J4J!!3'& 'A2/'30<10*1'.2*';&41'/,'
.2*' *;&67 1 3'8 ;&-D,**.9'&41'4&6*1'!.'
&,.*('2!63*;,' >4/(&4.'/,' .2*',&.*'/,' 2!3'
,!,.5'3/43'2*' -/6*3'./' (>/3'&41'.2*(*'1!*3'
/,' >(!*,' &.' .2*!('1*&.2" &4/.2*(' &6-/04.'
(*7(*3*4.3' 2!3' /4;5'30(=!=!4>'3/4'&3'(*-/4F
-!;!4>'2!6'./'2!3'<(/.2*(
,,! &403' 8$9' +(' + "' &' (**D'
A(!.*(' /4'A&(' &</0.'344'& " ' -/67/3*1'&
A/(D' 1*1!-&.*1' ./' (&K&4' /4' .2*' (**D'
/(1*(' /,' <&..;*' A!.2' 37*-!&;' (*,*(*4-*' ./'
&-*1/4!&4'.&-.!-3'&+ '+(' A2!-2'
!3' *0.&4.' </.2' !4' !.3' /(!>!4&;' &41' !4' &4'
*4;&(>*1',/(6' 2*' /(!>!4&;' 03*1',&;3*;5'
./'<*'&..(!<0.*1./' ((!&4
8@9' $' ! " '-&;;*1'(' ('
&' /6&4'/,' (3*4*3.*'A2/'A(/.*'!4' (**D'
;!=*1'&.' /6*"!4' .2*' @41' -*4.0(5' '&3'
.*&-2*(' /,' (2*./(!-' !3' 30(=!"=!4>' A/(D3'
&(*W 8$9' @N' !43!>4!,!-&4.' *&3&4.3' ;'
3/' -&;;*1'<*-&03*' &..(!<0.*1./' ..!-' 7*&F
3&4.3'' 8@9' = ' /(' 6!3-*;;&4!*3'
!4'$C'</B'3/6*'7(*3*(=*1/4;5'!4'*0.(&-.3'
&41' 8 9']a*' > ' " ' 2*'.A/'
;&3."6*4.!/4*1' &(*' -/7!/03' &41' =&;0&<;*'
-/;;*-.!/43' /,' &;;' D!413' /,' -0(!/3!.!*3' !4'
206&4' &41' &4!6&;' ;!,*' 6/3.;5'.&D*4',(/6'
&(;!('"A(!.!4>3'4/A';/3.

!;!&406' 03' '5! #) !" * '
! &3' 8$9' ' $ ' '5! #) !6
" *
8@9' '.9 " ' ' , " " ' &'
/6&4' >(&66&(!&4' </6' &.' &40"=!06'
&</0.' $VN' 4 ' 1 ' ' &41' ,(!*41' /,'
.2*' 7/*.' 0-!;!03' ./' A2/6' 2*' 1*1!-&.*1'
2!3',!(3.'</!D' /,' &.!(*3W 306&6*1' .!;/

8,(/6' ' 7*4-!;g' <*-&03*' <*' A(/.*' .37**-<*3' ,/(' 70<;!-' 6*4' &41' (3*-/4!403' <*-&03*' 2!3' ,&.2*(' A&3' &' -(!*(' && ' *' A&3' 3/' 3.(/4>;5' &..&-2*1' ./' .2*' 7&(.5' /,' 7.!6&.*3' .2&.' !4' $NN' 4 0' 2*' =/;04.&(!;5' &--/67&4!*1' *.*;;03' 06!1!-03' !4./'*0!;*' ,.*(' 2!3' (*.0(4' 2*' <*-&6*' .2*' 6&3.*(' /,' &((/'&41' !-*(/' *;;'=*(3*1'!4' (**D'&41' &.!4';!.*(&.0(*'2*'&77;!*1'2!63*;' -2!*,;5' ./' 3.015!4>' .2*' /;1*3.' (*;!*3' /,' 2!3' 4&.!=*' ./4>0*' -/66*4.*1'/4'.2*' !.0(>!*3' /,' .2*' &;!&4'7(!*3.3'&41'.2*' &A3' /,' .2*' A*;=*' G &<;*3' &41' *&(4*1' .2*' 2/4/0(' /,' 2&=!4>' (*3-0*1' .2*' &4-!*4.' &.!4' ;&4>0&>*' ,(/6' /<;!=!/4' &41' 7(*3*(=*1' 3/6*' D4/A;*1>*' /,' !.' ./' 7/3.*(!.5' 0-2' 3-&4.5'(*64&4.3'/,'!.' .!3' 2&=*' -/6*' 1/A4' ./' 03' !4' >;/33&(!*3' &41' .2*' ;!D*' 3**6' ./' <*' .&D*4' -2!*,;5',(/6' 2!3' GA(!.!4>3' 4/A'&;';/3.

>=H' 1)' >PH' ' ; ' 1)'

! ' " ' 91 '"#%* '#1 %' (*"&'

9 #'&' ') $ #' # ' ! 1 (

9#$#.4' (/<03' ' $ * !#')$#

4*&3' 8 (**D' " ' %8$9' /4' /,'

4-2!3*3' &41' 72(/1!.*' /(4' /4' .2*' 6/04.&!43',/' 1&' 2*' !3'<(/0>2.'07'.!;;'2!3',!,.2'5*&('<5'2!3'<(/.2*("!4";&A' ;-&.2/03' G/(' &--/(1!4>' ./' &4/.2*(' 3./(5' <5' .2*' 456723' /,' 1&' &41' &,.*(' 2!3',&.2*(' 3' 6!3F ,/(.04*'<*-/6*3'(0;*('/,' &(1&4/3' 2/0>2' 4*&(' /,' D!4' ./' .2*' (/5&;' 2/03*' /,' (/5' 2*' !3' !4' 4/' 20((5'./' 2*;7' (!&6' .!;;' 2!3' /A4' G-&..;*' &(*' -&((!*1' /,' <5' -2!;;*3' *.' 2*' !3' 2!>2;5'*3.**6*1' &.' (/5',/(' 2!3' 7!*.5' 7(01*4-*' &41' =&;/0(' &41' >/13' -/6*' ./' 2!3' &33!3.&4-*' !4' <&..;*' 203' 72(/1!.*' &41' 7/;;/'32!*;1'2!6'A2*4'2!3';!,*'!3'.2(*&.*4*1' <5' !/6*1' &41' /3*!1/4'34&.-2*3'2!6'/0.' G/,' .2*' -/6<&.' A!.2' -2!;;*3' 0.' (!&6' 1/*3'4/.';/=*'2!6',/(' 2*'&41'2!3'&(*'1*3.!4*1' 2*(*&,.*(' ./' (0;*' .2*' (/%&43' 2*'3./(5',' 2!3' *3-&7*' &.' .2*' ,&;;' /,' (/5' !3' ./;1' !4' 3*=*(&;' A&53Ⅱ /4*' !3' .2&.' 2*' <(&=*;5'-0.' 2!3'A&5'.2(/0>2'.2*'*4*65'./'.2*',&3.4*33*3' %/,' 1&' &4/.2*('.2&.';!D*' 4.*4/('2*'A&3' %37&(*1'<5'.2*' (**D3'<*-&03*'2*'2&1'&;A&53' -/043*;;*1' 7*&-*' &41' .2*' 30((*41*(' /,' *;*4&' &'.2!(1'.2&.'2*' 6&1*'2!3'*3-&7*'!4' .2*' >*4*(&;' -/4,03!/4' 2*' /;1*(' ;*>*41' (*7(*3*4.3'2!6'&3'3.&5!4>'!4'.2*' -/04.(5' ,/(6!4>'&'4*A'D!4>1/6'/0.'/,'.2*'A(*-D'/,' .2*' *0-(!&4'7*/7;*'&41'2&41!4>'!.'1/A4'./' 2!3'7/3.*(!.5' 41**1'3*=*(&;'./A432!73'/4' 1&' &;A&53'-;&!6*1'2!6'&3'.2*!(',/041*('2*'3./(5'/,'2!3'*6!>(&.!4>',(**;5'/('041*('G-/670;3!/4',(/6'.2*' (**D3'&41',/041!4>' &'4*A'D!4>1/6'<*5/41'3*&3'!3'-;*&(;5'/,' G7/3." /6*(!-1&.*' 4' .2*' *&(;!*(';*>*41' 2*' !3' (*7(*3*4.*1'&3'3*..;!4>'4/.'=*(5',&(

,(/6'2/6*' .2*4'.2*5'*0.*41*1'2!3'A&41*(F !4>3'./'6&.-2'.2/3*'/,' 1533*03'&;A&53' 7032!4>'.2*';!6!./,'2!3'=/5&>!4>3',&(.2*(' &41',&(.2*('A*3.' 2*' 7/*.' .*3-2 (03' 8&</0.'?NN' !3' 3/',&('&3'A*' D4/A'.2*' ,!(3.'A2/'<(!4>3'2!6'./' .&;5' &.*('!4' ,&-*'/,'.2*',&3.'(!3!4>'7/A*('/,' /6*'.2*' (**D3'-/4-*!=*1'.2*'4/.!/4'.2&.' 4*&3' 603.'2&=*'3*..;*1'!4' &.!06'&41'<*-/6*' .2*' &4-*3./('/,'.2*3*' /6&43' 2!3' 2&1' <*-/6*'&'3*..;*1'-/4=!-.!/4'!4'.2*!('6!413' <5'.2*'<*>!44!4>'/,'.2*' (1'-*4.0(5' A2*4'!63*03'!4'.2*' /6&4'!4.*(*3.'-/6F 7;*.*1'.2*' *>*41'/,'B4*&3'6&D!4>'(//6' !4'!.',/('&.!&4'&41' /6&4'.(&1!.!/43'&41' &.' /6*'!.'A&3'3//4'.&D*4'07'&41'1*=*;/7*1' !4./'&'1/>6&'/,'.2*'3.&.*'(*;!>!/4'(*7(*F 3*4.!4>'.2*' &4.&>/4!36'<*.A**4' (**-*' &41' /6*'.2*'4*A' (/5' (/6'.2&.'.!6*' =*(3*'&41'7(/3*'*41*&=/0(*1'./'<(!4>'.2*' =&(!/03'7;&-*3'A!.2'A2!-2'.2*' 4&6*' /,' 4*&3' A&3'-/44*-.*1'!4./'2!3./(!-' &41' >*/>(&72!-' 2&(6/45' 4/A'<0!;1!4>' /4' &' <&(*' (*3*6<;&4-*' /,' 4&6*3'4/A',/;;/A!4>' D!41(*1',&<;*3'&41'.2*' 2/;5'7;&-*3' /,' 72(/1!.*' !4*!&3'&' >/11*33' /,' 3*&' &41' 3*&,&(!4>' A2/3*' .*67;*3' A*(*' >*4*(&;;5',/041'/4'.2*'-/&3.3' 203'<5'1*>(**3'.2*' 3./(5'.//D'!4'.2*' 6&!4'.2*' 32&7*' 3/' ,&6!;!&(' ./' 03'!4' *(>!;3' " ? ' 4*&3' ,;**3',(/6'.2*' ,;&6*3' /,' (/5'<*&(!4>' /4' 2!3' 32/0;1*(3'.2*' 3.(!-D*4' 4-2!3*3' A!.2' .2*' *4&.*3';*&1!4>' 2!3'</5' 3-J4!03'&41' ,/;;/A*1'<5' 3' A!,*' (*.!3&'8A2/'!3';/3.' /4' .2*' A&59'.!;;' 2*' -/6*3'./' !6./' 1&' 2*(*' 2*' >&.2*(3' .2*' (*64&4.' /,' .2*' (/%&43'!4'.A*4.5'32!73'&41'3&!;3'<5'A&5' /,' 2(&-*' &41' *;/3'./' (*.*'!6&>!4!4>' .2&.'./'<*' .2*'1*3.!4&.!/4'&33!>4*1' 2!6'<5' 7/;;/' 0.'1(!=*4'.2*4-*' <5'7*3.!;*4-*' &41' A&(4*1'!4'&'1(*&6'.2&.' .&;5'!3'2!3' >/&;'2*!3',!(3.'-&((!*1'/0.'/,'2!3'-/0(3*'./' 7!(03'&41'.2*4'6&D*3'2!3'A&5'./' !-!;5' A2*(*'2!3',&.2*('1!*3' *' 2&3%03.3*.'/0.' ./'-(/33'./'.2*'6&!4;&41'A2*4'&'20((!-&4*' (&!3*1'<5'2!3'*4*65'04/'-&3.3'2!6'/4'.2*' -/&3./,' &(.2&>*'G *(*' 04/'&41' *403' 2&=*' &>(**1'.2&.'2*'32&;;'6&((5' !1/' <0.' &.' 07!.*(3'-/66&41'2*' 3*-(*.;5' :0!.3' ,(!-&'&41'2&=!4>'./0-2*1'&.' !-!;5' 06&*' &41' &!*.&'8 &*.&9' &((!=*3'&,.*(' 3*=*4' 5*&(3'A&41*(!4>' &.' .2*' !<*(3'6/0.2' &.!403'D!4>'/,' &.!06'>!=*3'2!6';*&=*' ./' <0!;1'&'./A4'&41'<*.(/.23'./'2!6'2!3' 1&0>2.*(' &=!4!&' 06 03'!4>'/,' .2*' 0...;!'./' A2/6'32*' 2&1' <**4'7(/6!3*1' <*,/(*' .&D*3'07'&(63'!4' &;;!&4-*' A!.2' *Q*4.!03'/,' &*(*' !4'.A*4.5'1&53'.2*'A&(' !3'*41*1'<5' 4*&3'1*,*&.!4>'</.2' --/(1"

!4>' ./' &4/.2*(' =*(3!/4'84/.' *(>!; 39' 2*' 1!3'"
B&77*&(*1'&,.*(' .2*' =!-./(5'/4'.2*' .04;-!03'
41' A&3' A/(32!77*1' &3' .2*' >/1' 07!.*(' 41;>*3' 2*' /6&4'=*(3!/4'!4'1.3' *&(;!*3.'
!/(63' &3' A*' 3*' !.' !4' 3*=!03' &41' 44!03'
<(/0>2.' B4*&3' &;6/3.' !4./' -/4.&-.' A!.2'
.2*',/041*(3'/,' /6*' /60;03'&21' *603'
<*!4>'(*>&(1*1'&3'-2!;1(*4'/,' 2!3' 1&0>2.*('
;!&' <5' .2*' >/1' &(3' 4' ;&.*(' .!6*3' ./'
,!;' 07' 10;5' .2*' 37&-*' <*.A**4' .2*' &;' /,'
(/5'&41' .2*' /041!4>'/,' /6*' .2*' ;!4*'
%/,' ;<&4'D!4>3'1*3-*41*1',(/6' !;=!03' 2!3'
3/4' <5' &=!4!&' A&3' !43*(.*1' <*.A**4' 2!6'
&41' /60;03

8@9' K)!*/R' 4&6*1' H .,.*' + "
G (**D'6!;!.&(5'&0.2/('A(/.*'&</0.' VN' '
'</!D'/4'.2*' (./,' &('/,' A2!-2' /4;5'
"& 36&;' 7&(./4' 3!*>*"/7*(&.!/43' 030&;;5'
%*4.!.;*1', /"' !3' 7(*3*(=*1" !.' !3'
%-;*&(' !4' *07/3!.!/4' &41' -/4.&!43' 60-2'
=&;0&<;*' 2!3./(!-&;'!4,/(6&.!/4

,,!/;03' 8$9' (&413/4'/,' *0-J;!/4' 3/4'
%/,' *;;*4' <5' .2*' 4 4 &72 (3* 3'<(/.2*('/,'
/(03' &41']0.203" D!4>'/,' &>4*3!&' !4'
2*33&;5' &41' 65.2!-' &4-*3./(' /,' .2*'
B/;!&4'(&-*'2!3'3/43'<*!4>',/041*(3'/,' .2*'
B/;!&4'3*..;*6*4.3'37(*&1'&;' /=*(' (**-*'
5'2!3'A!,*' 9" ' 2*' 2&3' 3*=*4' 3/43'
$ (',/041*('/,';/;-03'&41',&.2*('<5'
5(/',/'! 3/4'8 &3/4 ',&.2*(9'/,' 2*(*3'
8,/041*('/,' 2>(3*'!4' 2*33&;5'&41',&.2*('
/,' 16*.03'&41' 5-0(>039'&41' /,' 65"
.2&/4'8,&.2*!' /,' !&3' &41' *;&6 7439"
.! : (',/041*('/,' 72 B(&8 /(!4.29'
,&.2*(' /,' ;&0-03' &41' >(&41,&.2*(' /,'
B*;; (72/4" (D!4>'/,' (-2/6*'
403' ,&.2*(' /,' 2(!003' &41' *;;*" 2
<0!;1*('/,' &;6'/4*' !4' ;!3',&.2*('
/,' 5(/" 5 "'D!4>'/,' 2/-!3',&.2*(' /,'
-./(' 25;0-03' &41' 72&;03" 1" '
,&.2*(' /,' !-.53' &41' /;51*-.*3' A2/'
-/;/4!Q*' .2*' !3;&41' /,' *(!7203' & '
!#(7', ' D!4>'/,' *33*4!&' ,&.2*('
%/,' 72&(*03' &41' *0-!7703' ;3/' ,!=*'
%1&0>2.*(3' $ " ' 6/.2*(' <5' /3*!1/4'
/,' 7/7*03' &41' ;/*03' & ' !'
: " ' & ' " #'!' , " $: '
6/.2*(' /,' 41K(6!/4" &41',
8@9' 4' /6*(' &' 3/4' /,' !77,!.*3' &41' &'NC9'
,&=/0(!.*' /,' .2*' >/13' A2/6' L*03' 2&3' &7F
7/!4.*1' ,***7*(' /,' .2*' A!413' 4' 2!'
! /;!&4'!3;&41',;/&.!4>'!4'.2*',&(' A*3.'!.3'
.**7' -;!,;*4-!(-;*1'<5'&'<(&Q*4'A&;;'2*'
;!=*3'!4' 04<(/D*4'<;!33'A!.2'2!3'A!,*' &41'
!!3' 3!0' 3/43' &41' 3!0' 1&0>2.*(3' A2/6' 2*'
2&3' A*11*1' ./' /4*' &4/.2*(' *' 2/37!F
.&<;5'*4.*(.&!43' 1533*03' >!=*3' 2!6' .2*'
04,&=/0(&<;*' A!413' 320.' 07' !4'&';*&.2*(4'
<&>' &41' &' D!41;5'<(**Q*' ./' A&,.' 2!6' /4
2!3'=/5&>*' 0.' A2*4'.2*' 2*(/3'-/6(&1*'
/7*4' .2*' <&>' .2*' A!413' <(*&D' /0.' &41'
<;/A' 2!6' <&-D'./' .2*' K /;!&4' 3;*' .2*4'
B/;03'1(!=*3'2!6',(/6'2!3'1//('&3'/4*' 2&.*F
,0;' ./' .2*' >/13' 4' .2*' ;&.*(' ;*>*41' 2*'
1A*;;3' /4' /4*' /,' .2*' B;!&4' !3;*3'./' .2*'
4/(.2'/,' !-!;5' ;7!(&'/(' .(/4>B;*'A2*(*'
.2(/4*1'/4'&'6/04.&!4'2*' 2/;13' .2*' A!413'
!67(!3/4*1'!4'.2*' 2/;;/A'/,' .2*' 3&6*" 5*.'
2*' 1/*3' 4/.' 3**6'./' 2&=*' (*-*!=*1'(*&;'
A/(32!7' *' A&3' 6/(*/=*(' <(/0>2.' !4./'
>*4*&;/>!-&;' -/44*-.!/4' A!.2' /;03' /,'
2*33&;5'A2/3*3/4' !6&3' <*>*.3' !77/.*3'
&41'2*'8<5' *;&4!77*9' " ' ! 'D!4>'
&/,' B03' !4' ! ./;!&" .2!3' /;03'>!=*3' 2!3'
1&0>2.*(' 6*' .2*' <*;/=*1'/,' /3*!1 4'
./' & >0*3.",(!*41',(/6' *.&7/4.06' !4'
0-&4!&' A2*(*' 32*' 2&3' .A/' 3/43' <5' .2*'
>/1'.2*' (' != '&41' /* .03' 2*3*'
&1/7.*1'<5'.2*' *.&7/4.!&4'D!;' 2!3' A!,*'
0. ;B.'&41' (04'&A&5' /*1.03'(*.0(4!4>'
A!.2' (4*' ./' 2!3' >(&41,&.2*('&41' /;03'
3*..;!4>'!4' .2*' !3;*3' 4&6*1'&,.*(' 2!6'&41'
,/041!4>'.2*'-!.5'/,' !7&(&
,,!/(&' *3.!=&;' /,' .2*' 3A!4>' '
'$
;:0!.,!3' .' /6*'.2*'7*(3/4!,!-&.!/4'/,'
*:0!.5'/(',&!(4*33'&3'/77/3*1'./'.2*'K03.!-*'
.2&.'1*-!1*3'<5'.2*';*..*(' /,' .2*';&A' 2*'
A&3' (*7(*3*4.*1' &3' &' 3.&.*;5'=!(>!4' A!.2'
2*(';*,.' 2&41'/7*4'&41' /,.*4' A!.2'&' 7&!('
/,'3-&;*3
; (&(!!' 5' .2*' -/43.!.0.!/4' /,' *(=!03'
0;;!03'&' ' * &(' .2*' ' A*(*'
-!.!Q*43' 4/.' 3*..;*1' /4';&41' /,' .2*!('/ 4'
&41' .2*(*,/(*'4/.'!4-;01*1'!4'&45'/4*' /,' .2*'
7(/7*(.5"-;&33*3',/041*1'/4';&41/A4*(32!7'
2*'.*(6'A&3'&;3/&77;!*1'./.2/3*'3.&41!4>'
/0.3!1*' /,' .2*' .(!<&;' 04!/4'A2/' A*(*' *OF
-;01*1',(/6' .2*' (!>2.' /,' =/.!4>'&41',(/6'
6!;!.&(5'3*(=!-*' &41' A*(*' </041' ./' 7&5'
&7/;;".&0' !4' 7(/7/(.!/4' ./' .2*!(' 6*&43'
!.!Q*43'!4' .2*'-;&33*3'&41'.(!<*3'-/0;1'<*'
07;;*1',(/6'.2*!('.(!<*' <5'.2*' -*43/(3'!4'
704!326*4.' ,/(' &45' ,&0;.' &41' 7;&-*1'
&6/4>'.2*')(&(!!' 0.' A2*4'.2*' ;&..*('
A*(*';!D*A!3*'&16!..*1!4./.2*'.(!<*3'8 -'
NR9'<*!4>'*4(/;;*1!4'.2*' -!.5'.(!<*3'8 '
*3.**6*1'.2&4'.2*' -/04.(5'/4*3'&'7*4&;'
.(&43,*(./.2*' (&(!!'-/43!3.*1!4'*070;3!/4'
,(/6'/4*3'7(/7*('.(!<*'&41' (*6/=&;./' 4*'
/,' .2*' -!.5'.(!<*3'.!;' &.' ;*&3.' .2*' 4*0.'
-*4303

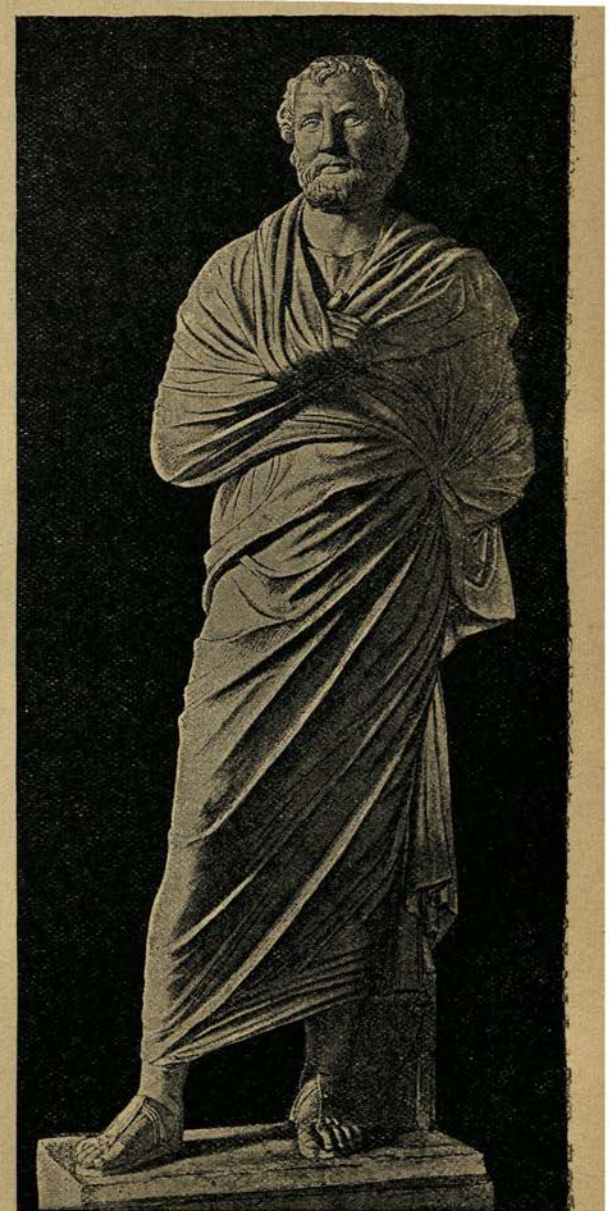
(&(!06' 2*' 3.&.*".(*&30(5'/,' /6*'
!4./' A2!-2' ,;/A*1' .2*' (*=*40*3'/(1!4&(5'
&41' *0.(&/(1!4&(5'&41' /0.' /,' A2!-2' .2*'
4**1,0;' *07*43*3' A*(*' 1*,(&5*1' .' &3'
D*7.'!4'.2*'<&3*6*4.'/,'.2*'.*67;*/,' &.0(4

under the charge of the quæstors. A special reserve fund was the *Ærarium sanctius*, in which the proceeds of receipts from the manumission-tax (one twentieth of the freed slave's value) were deposited in gold ingots. When Augustus divided the provinces into senatorial and imperatorial, there were *two* chief treasuries. The senatorial treasury, which was still kept in the temple of Saturn, was left under the control of the senate, but only as a matter of formal right. Practically it passed into the hands of the emperors, who also brought the management of the treasuries under their own eye by appointing, instead of the quæstors, two *præfecti ærarii* taken from those who had served as prætors. Besides, they diverted into their own *Fiscus* all the larger revenues, even those that legally belonged to the Ærarium. When in course of time the returns from all the provinces flowed into the imperial treasury, the senatorial Ærarium continued to exist as the city treasury. The *Ærārium militare* was a pension-fund founded by Augustus in A.D. 6, for disabled soldiers. Its management was entrusted to three *præfecti ærarii militaris*. It was maintained out of the interest on a considerable fund, and the proceeds of the heritage and sale duties.

Aërŏpē. Daughter to Catreus of Crete (*q.v.*), who was given up by her father to Nauplius to be sold abroad. Married to Atreus (*q.v.*), she bore Agamemnon and Menelāus, but was thrown into the sea by her husband for her adultery with his brother Thyestes.

Æsăcus. Son of Priam by Arisbē, who had learnt the art of interpreting dreams from his maternal grandfather Merops, and being consulted by his father as to Hĕcŭba's bad dreams before the birth of Paris, advised him to expose a child so clearly doomed to be the destruction of Troy. In despair at having caused the death of his wife Astĕrŏpē (or Hespĕria) he threw himself into the sea, and was changed into a bird, the diver.

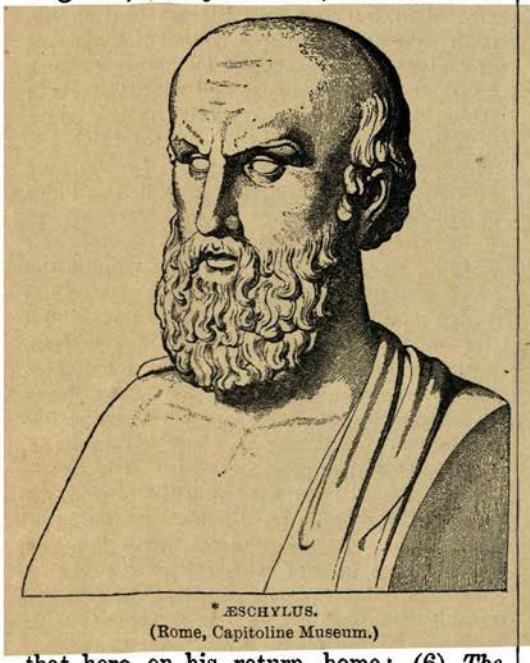
Æschĭnēs. (1) *The Socratic*, son of a sausage-maker at Athens, lived in the most pinching poverty, but would not let it discourage him in his zeal for learning. Some time after the death of Socrates, to whom he had clung with faithful affection, in B.C. 399, Æschines, probably to mend his fortunes, removed to Syracuse, and there found a patron in the younger Dionysius. On the fall of that tyrant, he returned to Athens, and supported himself by writing speeches for public men. He composed Dialogues, which were prized for their faithful de-



ÆSCHINES THE ORATOR.
(Naples, National Museum.)

%3-(!7.!/43 / , 1-(&.*3 &41 .2* *;*>&4-* / , .2*!(3.5;* 2(** 73*01/" ;&./4!* 1!&F ;/>0*3 &(* -/4K*-.0(&;;5 &3-(!<*1 ./ 2!6 " +(= " + 1(* - (B "5 (&41 9 :- " 7 (0. !.! !3 1/0<.,0; A2*.2*(.2*5 &(* (*&;;5 ,(/6 2!3 2&41 8@g ! (" (< / 6 &. .2*43 - RT !4 &; /A 3.&.!/4 3 &5/0.2 2* "&33!3.*1 2!3 ,&.2*(!4 D**7!4> &4**;* 6*4.&(5 *-2//; .2*4 &-.*1 &3 -;*(D ./ 3*=*(&; !4F ,*(!/(6&>!3.(&.*3 A&3 ,/(&.!6* &4 &-./(!4 .2!(1"(&.* 7&(.3 .!;; &4 &--1*4.(*6/=*1 "2!6 ,(/6 .2* 3.&>* A2*4 2* <*-&6* 3*-(*F .&(5 ./ .2* *3.** 6*1 /(&./(3 &41 3.&.*36*4 (!3./72/4 &41 0<0;03 &./A2/3* (*-/6F 6*41&.!/4 2* &3 .A!-* *;*-.*1 ./ &>/=*(4F 6*4. -;*(D32!7 &=!4> .203 &-:0!(*1 & _3/041 D4/.3(;*1> / , .2* ;&A3 &41 / , ;*>&; 7(/-**1!4>3 &41 <*!4>>!,.*1 A!.2*-/43!1*(" &<;* .&;*4.*,!4* *;/-0.!/4 &41 & 1!>4!,!*1 6&44*(./ A2!-2 2!3 *07*(!*4-* /4 .2* WR.&>* 2&1 -/4.(!<0.*1 2* 4/A -&6* ,/(A&(1 &3 & 70<;!-: 37*&D*(&41 3//4 <*-&6* &4 !67/(.&4. 7*(3/4&>* 3 & 6*6<*(/ , .2* *6<&335 3*4. ./ 2!;!7 / , &-*1/4 ,/(.2* "-/4-;03!/4 / , 7*&-* / CU 2* A&3 A/4 %/=*(<5 .2* D!4>./ 3*-/41 .2* 7;&43 A2!-2 7(/=*1 3/ ,&.&;./ .2*43 &41 A&3 .2*(*,/(* "&--03*1 / , 2!>2 .(*&3/4 <5 !6&(-203 &41 *6/3.2*4*3 !4 4 CV <0. 2* 6&4&>*1 C/ -;*&(2!6 3*;; <5 & .(!0672&4. &..&-D /4 .2* 7(!=&.* ;!,* / , !6&(-203 4 4 C@ *6/3.2*4*3 A2/ 2&.*1 2!6 .,!* 2*&1 / , .2* &-*1/4!&4 7&(.5 &3 <!..*(;5 &3 2* A&3 2&.*1 <5 2!6 (*4*A*1 .2* -2&(>* !4 2!3 %/(&.!/4 "(A 9 : " 3-2!4*3 2/A*=*(6*. !. 30--*33,0;;5 <5 &4 *:0&;;5 <(!:;!&4. 37**-2 <*&(!4> .2* 3&6* .!.;* !3 047&.(!/.!-/-/410-. /--&3!/4*1 .2* A&(A!.2 2!;!7 A2!-2 ;*1 ./ .2* /=*(.2(/A / , .2* " .2*4!&43 &41 2*<&43 &. 23*(/4 & R &41 3*. .2* 3*&; ./ .2* &-*1/4!&4 307(*F 6&-5 /=*((**-* !3 /A4 ,&;; &.;&3 A&3 <(/0>2. /4 <5 2!3 2&.(*1 / , *6/3.2*4*3 ") 3-2!4*3 2&1 7(*=!/03;5 <(/0>2. & -2&(>* "/, !;;*>&;!.5 &>&!43. .*3 72 4 , /(7(/7/3!4> .2* 1!3.!4-.!/4 / , & >/;1*4 -(/"A4 , /(*6/3.2*4*3 2* -2&(>* A&3 (*7*&.*1 N !4 & <(!:;!&4. /(&./4 4/6!4&;;5 "1!(*-.*1"17&*43. $ ("%C= (*&;;5 &!6*1 %&<!3 /;1 (!=&; *A&3 -/67;*.*;5 -(032*1 <5 *6/3.2*4*3 >(*&. 37**-2 "($ @" &41 <*!4> -/41*6 4*1 ./ 7&5 &, !4* , $ NNN "1(&-26&3 A*4. !4./ =/;04.&(5 *0!;* &. 2/1*3 A2*(* 2* !3 3&!1 ./ 2&=* /7*4*1 & %3-2//; / , /(&./(5 2*4-* 2* (*6/=*1 ./ &6/3 &41 1!*1 -$C *3!1* .2* .2(** %/(&.!/43 4&6*1 # 1 " + ("(A 9 : 1 " $ (" A* 2&=* 041*(2!3 4&6* & -/;;*-.!/4 / , .A*;=* ;*..*(3 7(/,*33!4>,<*A(!..*4,(/6 2/1*3 <0. (*&;;5 , /(B1 <5 & ;&.*(2&41 6/4> .2* /(&./(3 /,4!3 .!6* 3-2!4*3 (&4D3 4*0. ./ *6/3.2*4*3 !3 /(&.!/43 &(* *;&</(F &.*1 A!.2 .2* 0.6/3. -&(* &41 (*,;*0!/4 .2*5 2&=* ,0;4*33 ,/(-* 36//.24*33 &41 >(&-** <0. ;&-D .2* .*(3*4*33 .2* (25.26 &41 .2* 6/(&; !437!(&.!/4 /, .2/3* /, *6/3.2*4*3 2*5 A*(* 37/D*4 /, !4 &4.!:0!.5 &3 .2* 2(* (&-*3 3-2 ;;!;!3 2* *&(;!*3. /, .2* .2(**>(*&. (&>!-7/*.3 /, (**-* 3/4 /, 072 (! 4 * A&3 </(4 &. ;*03!3 4*&(.2*43 4 0 V@V / , &4 /;1 &41 4/<;* 3./-D /,0>2. &. &(&.2/4 J;;!6!3 &41 ;&.66 &41 !4 2!3 @V.2 5*&(&77*&(*1 & &A(!.*(/, .(&>*1!*3 &41 (!=&; /, (&.!4&3 &41 2.*(!; 3 .2/0>2 2* 1!1 4/. A!4 2!3 ,!(3.=!-./(5 .!;; CRR 4 </0. CU? 2* ;!=*1 !4 !-!;5 &. .2* -/0(. /, !*(/ /, 5(&-03* &41 -/67/3*1 2!3 89 " " , /(.2* -/43*-(&.!/4 /, .2* -!.5 /, .4& ,/041*1<5 .2& D!4>!4 .2* 7;&-* / , .2* &4-!*4. .&4& 4 2!3 (*.0(4 ./ .2*43 2* A&3 <*&.*4<5 .2*5/04> /72 -;*3 A!.2 2!3 =*(5 ,!(3.7;&5 <0. =&4:0!32*1 2!6 &>&!4 .2* 4*0. 5*&(A!.2 .2* *.(&;/>5 / , GbB!*2 .2* " 1 " + (, /(6*1 &7&(. , .*(.2* 7*(,/(6&4-* / , 2!3 4 CVT 2* :0!..*1 2/6* /4-* 6/(* 7*(F 2&73 !4 1!3>03. &. .2*>(/A!4>7/A*(/ , .2* 1*6/-(&-5 &41 &, .*(.2(** 5*&(3 (*3!1*4-* &. *;&! !4 !-!;5 A&3 D!;;*1 3&53 /4* 3./(5 <5 &4 *&>;* 1(/77!4>& ./(./!3* /4 2!3 <&(* 3D0;; 2* !42&<!.&4.3 / , 80*;& <0(!*1 2!3 (*6&!43 &41 2/4/0(*1 .2*6 A!.2 & 37;*41!1 6/406*4. .& ;&.*(.!6* .2* .2*4!&43 /4 .2* 6/.!/4 / , .2* /(&./(5-0(>03 7;&-*1 & <(&0*4 .&.0* / , 2!6 &3 A*;;* &3 / , /72/-;*3 &41 0(!7!1*3 !4 .2* .2*&.(** <5 & 1*-(** / , .2* 7*/B* & -2/(03 A&3 >(&4.*1 , /(*=*(5 7*(, /(6&4-* / , 2!3 7;&53 &41 .2* >&(;&41 /(=!-./(5 =/.*1 2!6 &3 .2/0>2 2* A*(* 3.!;; !"=!4> &6/4> .2*6 !3 .(&>*F 1!*3 ;!D* .2/3* / , .2* /.2*(.A/ A*(* 7(*F 3*(=*1 !4 & 37*-!&; 3.&41&(1 -/75 ./ >0&(1 .2*6 &>&!43. &(<!.(&(5 &;.*(&.!/43 !3 3/4 072/(!/4 A&3 &;3/ &4 *3.**6*1 .(&>!-7/*. 3/ A&3 2!3 3!3.*(3 3/4 2;; -;*3 &41 2!3 1*3-*41&4.3 , /(3*=*(&; >*4*(&.!/43 & &1 " (2* 406<*(/ , 3-25;03 3 7;&53 !3 .&.*1 &3 TN / , A2!-2 R@ &(* 3.!;; 6/A4 <5 .!.;* <0. /4;5 U &(* 7(*3*(=*1 8$g + (, " 7*(,/(6*1 !4 CU 4 A&3 4&6*1 ,/(6 .2* -2/(03 .3 30<K*-. A&3 .2* 3&6* &3 .2&. /, 2(54!-203 A((.2* 1*,*&./,] *(0*3 &. &;&6!3 <0. A&3 1!,! *(*0.;5 .(*&.*1 8@g + ("

against Thebes, part of a Tetralogy, embracing the cycle of Theban legend, of which *Laïus* and *Œdĭpūs* formed the first two pieces, and the satyric drama *Sphinx* the conclusion. (3) *The Suppliants*, the reception of Dănăus and his daughters at Argos, evidently part of another Tetralogy, and, to judge by the simple plot and its old-fashioned treatment, one of his earliest works. (4) *Promētheus Bound*, part of a Trilogy, the *Promētheia*, whose first and last pieces were probably *Prometheus the Fire-bringer* and *Prometheus Unbound*. Lastly, the *Oresteia*, the one Trilogy which has survived, consisting of the three tragedies, (5) *Agamemnon*, the murder of



* ÆSCHYLUS.
(Rome, Capitoline Museum.)

that hero on his return home; (6) *The Choēphŏræ*, named from the chorus of captive Trojan women offering libations at Agamemnon's tomb, in which Orestes avenges himself on Ægisthus and Clytæmnēstra; and (7) *The Eumĕnĭdĕs*, in which Orestes, pursued by the Furies, is acquitted by the Areŏpăgus at Athens. This Trilogy, composed B.C. 458, and probably the last work exhibited by Æschylus at Athens, gives us an idea of the whole artistic conception of the poet, and must be looked upon as one of the greatest works of art ever produced. The style is marked by sublimity and majesty, qualities partly attributable to the courageous and serious temper of the time, but chiefly the offspring of the poet's individuality, which took delight in all that is great and grand, and loved to express itself in strong, sonorous words, an accumulation of epithets, and a profusion of bold metaphors and similes. His view of the universe reveals a profoundly philosophic mind, so that the ancients call him a Pythagorean; at the same time he is penetrated by a heartfelt piety, which conceives of the gods as powers working in the interest of morality. However simple the plot of his plays, they display an art finished to the minutest detail. His Trilogies either embraced one complete cycle of myths, or united separate legends according to their moral or mythical affinity; even the satyric dramas attached to the Tragedies stand in intimate connexion with them. Æschylus is the true creator of Tragedy, inasmuch as, by adding a second actor to the first, he originated the genuine dramatic dialogue, which he made the chief part of the play by gradually cutting down the lyrical or choral parts. Scenic apparatus he partly created and partly completed. He introduced masks for the players, and by gay and richly embroidered trailing garments, the high buskin, head-dresses, and other means, gave them a grand imposing aspect, above that of common men; and he fitted up the stage with decorative painting and machinery. According to the custom of the time, he acted in his own plays, practised the chorus in their songs and dances, and himself invented new dance figures.

Æscŭlāpius. *See* ASCLEPIUS.

Æsōn, son of Crētheus by Tyro (*see* ÆOLUS, 1), king of Iolcos in Thessaly, was deposed by his half-brother Pĕlĭas, and killed while his son Jason was away on the Argonautic Expedition. (*Comp.* ARGONAUTS.)

Æsōpus (Gr. *Aisōpos*). The famous writer of fables, the first author who created an independent class of stories about animals, so that in a few generations his name and person had become typical of that entire class of literature. In course of time, thanks to his plain, popular manner, the story of his own life was enveloped in an almost inextricable tissue of tales and traditions, which represent him as an ugly hunchback and buffoon. In the Middle Ages these were woven into a kind of romance. A Phrygian by birth, and living in the time of the Seven Sages, about 600 B.C., he is said to have been at first a slave to several masters, till Iadmōn of Samos set him free. That he next lived at the court of Crœsus, and being sent by him on an

* 6 <&3B' ./' *;72!' A&3' 60(1*(*1' <5' .2*' 7(!*3.3' .2*(*' !3' 70(*' ,!-.!/4' 41*(' 2!3' 4&6*' A*(*'7(/7&>&.*1'!4';&;'7&(.3'/,' (**-*' &.' ,!(3.' /4;5' <5' .(&1!.!/4' !4' .2*' 6/0.2' /,' .2*' 7*/7;*' &' 60;.!.01*' /,'7(/3*' .&;*3' .*&-2F !4>' .2*' ;*33/43' /,' ;!,*' 041*(' .2*' >0!3*' /,' ,&<;*3' &</0.' &4!6&;3' *' D4/A' 2/A' /-(&.*3' 10(!4>' 2!3' ;&3.' 1&53' !4' 7(!3/4' A&3' *4>&>*1' !4'.0(4!4>'.2*',&<;*3'/,' E3/7' !4./' =*(3*' 2*',!(3.'A(!..*4'-/;;*-.!/4'&7F 7*&(3./'2&=*' <**4'3*.'/4',//.'<5' *6*.(!03' /,' 2&;*(06' ' NN' 2*' -/;;*-.!/43' /,' !8 D' A ' .2&.' 2&=*' -/6*1/A4'./'03' &(*' !4' 7&(.' ;&.*' 7(/3*' (*41*(!4>3' /,' .2*' =*(3!/4' !4' -2/;!&6<!-3' <5' &<(!03' ' A2!-2' .!;;' (*.&!4' 2*(*' &41' .2*(*' &' 3-(&7' /,' =*(3*' 7&(.;5'7(/10-.3'/,' .2*' (2*./(!-&;' 3-2//;3' &41' .2*(*,/(*' /,' =*(5' 1!,,*(*4.' 7*(!/13'&41'1*>(**3'/,'6*(!. B356 4*.3'8H'(*>0;&./(3 l'HK01>*3'I9' ' 4&6*' >!=*4' !4' 3/6*' (**D' -!.!*3' ./' .2*' /(1!4&(5'6&>!3.(&.*3'&41'K01!-!&;',04-.!/4F &(!*3' 4' *&(;!*(' .!6*3' .2*' .*(6'A&3' &;3/' &77;!*1'./' 7*(3/43'&77/!4.*1',/(' &'1*,!4!.*' .*(6'8/(' 04.!;' .2*' -/67;*.!/4',' .2*!(' .&3D9' ,/(' 70..!4>' &4' *41' <5' ;*>!3;&.!/4',' .2*!(' .!4F .*(4&;':0&((*;3' /6*.!6*3' &4' :" ' A&3' =/;04.&(!;5'-2/3*4'<5'.2*' -/6604!.5' ,/(';!,*' &41' *4.(03.*1' A!.2' 307(*6*' &41' 04;!6!.*1'7/A*(' 2*'/,;!-*'/,' :" ' 6&5'./' &' -*(.&!4' *0.*4.'<*' -/67&(*1'A!.2' .2*' /6&4'1!-.&./(32!7'.2/0>2'.2*' ;&..*(' A&3' 4*=*(' -/4,*((*1'A!.2/0.' &'3.(!-.' ;!6!F .&.!/4'/,'.!6* ;.2(&' 1&0>2.*(' /,' !..2*03' D!4>' /,' (/*Q>4' 6/.2*(' /,' 2*3*03' <5' >*03' /(' &--/(1!4>'./'&4/.2*(' &--/04.' <5' /3*!1/4' 2!;*' /6*(' 6*(*;5' 6*4.!/43' 2*(' &3' &' 3*(=&4.' /,' *;*4' &.' (/5' ;&.*(' ;*>*41' &113'.2&.'A2*4'.2*' !/3-0(!.//D' B2!143*' &41' 3*.',(**' .2*!(' 3!3.*(' A2/6' 2*3*03' 2&1' -&((!*1' /,,' .2*5' -/4=*5*1' .2(&./' 7&(.&'&3'&;&=*' A2*4-*' 32*' &--/67&4!*1' *;*4'./' (/5' &41' .2&./4'.2*',&;;'/,'.2&.' -!.5' .2*5' <(/0>2.'2*(' >(&413/43' -,.6&3' &41' *6V72//4'<&-D'./' .2*43 .!14' ' (**D'7&!4.*(' !4' .2*' ;&..*(' 2&;' /,' .2*' C.2' -*4.0(5' ' *37*-!&;;5' ,&6*1',/(' 2!3' 7!-.0(*' /,' ;*0&41*(' .2*' (*&.3'A*11!4>'A!.2' !*'<*&0.!,0;' /0&4&' -' @R 1.!03'8 (' ' ,' 6!1&'!4' *3/7/F .&6!&'&' (**D'7253!-!&4'/,'.2*'?.2'-*4.0(5' ' A2/' ;!=*1' &.' /43.&.!4/7;*' &3' !6F 7*(!&;' 7253!-!&4' !4' /(1!4&(5' *' A&3' .2*' &0.2/(' /,' &' >(*&.' 6!3-*;;&45' /4' 7&.2/;/>5' &41' 1!&>4/3!3' !4' 3!0.**4' </!D3 ,(T4;43'&'E ' 2*' -2!*,' 6&3.*(' /,' ' *"&'A ' + 1 ' # ' $ "0(' ;/0(F !32*1' -' $N&a' ' 63' 7!-.0(*3' /,' /6&4' ;!,*' 2*' .//D' *4&41*(' ,/(' 2!3' 6/1*;' &41' A!.2'>(*&.'30--*33' !-*(/'-&;;3'2!6'A!..5' &41' &' 6&3.*(' /,' ;&4>0&>*' /' K01>*' <5' .2*' 406<*(' /,' .2*' .!.;*3' /,' 2!3' -/6*1!*3' A2!-2'2&=*'30(=!=*1'86/(*' .2&4',/(B'A!.2' 3-&4.5',(&>6*4.39'2*' A&3'&'7(/;!,!-'&0.2/(' ,(/6'.2*6'A*'>&.2*(' .2&.'2!3'30K*-.3'A*(*'' 6/3.;5' .&D*4',(/6',&6!;5';!,*' !3' 7;&53' D*7.' 7/33*33!/4' /,' .2*' 3.&>*' ;/4>*(' .2&4' .2/3*/,' 6/3.'//41/'7/*.3'<*!4>'3.!;;'&-.*1' !4' *(/3'.!6* >J6*1*3' /4' /,' ' /,' (-2 '' 61403'&41'&'2*(/'/,'.2*'<0!;1!4>'&(.';!D*' 2!3'</.2*(' (/72/4!03'& >16*6414' 2*' .(*!1' !-' 3/4' /,' .(*03'&41'</.2*(' /,' *4*; 03' (!=*4' ,(/6' 5-*4&*' &,.*(' .2*' 60(1*(' /,' .(*0' &' ' 25*3.*3'.2*' .A/'5/04>'7(!4-*3' ,;5'./' 7&(.&'A2*(*' D!4>' 541&(*/3'>!=*3' .2*6'2!3'1&0>2.*(3' !4' 6&((!&>*' ;5.&*6'' 4*3.(&' ./' >&6*64/4' &41' ; 4&' ./' *4*;&03' 2!;*' .2*' ;&..*(' !42*(!.3' 2!' ' ,&.2*("!4";&A3' D!4>164' >&6*64/4' 4/./4;5'1(!=*3'2!3'04-;*' /0./' 5-*4&*'<0.' 3/'*0.*413'2!3'1/6!4!/43'.2&.'!4'.2*' A&(' &>&!43.' (/5',/(' .2*'(*-/=*(5'/,' *;*4&'.2*' -2!*,' -/66&41'!3'*4.(03.*1'./'2!6'&3'.2*' 6!>2.!*3.'7(!4-*'!4' (**-*' *'/4.(!<0.*3!'' /4*'2041(*1'32!73'6&44*1'A!.2'A&((!/(3' <*3!1*';*41!4>'3!O.5'./'.2*' (-&1!&43'8 4' .2*'!6 6/;&.!/4',' 2!3'1&(B2.*(' 72!>*4*!&' &.' 0;!3' ') 1 * &(' 4' /6*(' 2*'!4' /4*',' .2*'<(&=*3.',!>2.*(3'<*,/(*' (/5'5*.' <5'&((/>&4.;5'(*,03!4>'./';*.' !(53*3'7(!*3.' /,' 7/;;/' (&43/6'2!3'1&0>2.*(' 2(53*!3' A2/'2&1',&;;*4'./' >&6*64/4'&3'.2*' 7(!Q*'' /,' A&(' 2*'<(!4>3'&'7;&>0*'/4'.2*' (*-!&4' 2/3.'A2!-2'2*'&,.*(A&(13'&;6/3.'6!43'<5' (0.2;*33;5'-&((5!4>'/,' (!3*;3'.2*'7(!Q*'&' -2!;;*3'A2/'2*4-*',/(.2'3!.3'30;D!4>'!4'2!3' .*4.3'&41'(*,03*3'./',!>2.' ,.*(' .2*',&;;' /,' (/5' >&6*64/4'-/.4*3'2/6*A!.2'2!3' &7.!=*' .2*' 7(!4-*33' &33&41(&" <0.' &.' 3077*(' 2*' &41' 2!3'-/6(&1*3'&(*' 60(1*(*1' <5'2!3'A!,*3';/=*(' >!3.203'A2!;*'.23':0**4' 2*(3*;,' D!;;3' &33&41(&' 0-2' !3' /6*(3' &--/04.'' .2*' .(&>!-' 7/*.3' 6&D*' ;5.*6' 4*3.(&'!4'(*=*4>*'/,'2*(' 1&0>2.*(3'!66/F ;&.!/4'.2(/A'&'4*./=*(' >&6*64/4'A2!;*' <&.2!4>' &41' D!;;' 2!6' A!.2' .2*' 2*;7' /,' >!3.203' 4' /6*(' 2!3' 2!;1(*4' &(*' 72!&4&33&' 2(53?.2`6!3' & 1,-<' &41' (*3.*3'' .2*' ;&.*(' ;*>*41' 70.3' 72!>*4*!&' &41' ;*-.(&'!4'.2*'7;&-*'/,' 72!&4&33&'&41' &/1!-*' >*6*46/4'A&3'A/(32!77*1'&3' &'2*(/ >&4!77*'&'37(!4>'3&-(*1'./'.2*' 03*3' /4' /04.' ; -/4'4*&(' 2*37!&*'!4' /*/.!&

A2/3*' A&.*(' !67&(.*1' 7/*.!-' !437!(&.!/4'
;3/' .2*' 45672' /,' .2*' 3&6*' 1&0>2.*(' /,'
.2*' (!=*("/1' *(6*3303

F' ' ' ' ' R
8 &(!3' /O=(*9

>&3;&3' ' (**D' &(.!3.' /,' 72*303'
7(/<&<;5' !4' .2*' $3.' -*4.0(5' ' ' 2*'
1(' 6 ' !4' .2*' /0=(*' !3',(/6'
2!3' 2&41' # ' $())
>,! .2&(-2!1*3' ' (**D' >(&66&(!&4'/,'
4!143' A2/' ;!=*1' &.' ;*0&41(!&' !4' .2*'
@41' -*4.0(5' " ' &3' .0./(' &41' &,.*(A&(13'
>0&(1!&4'/,'&'7(!4-*' *' -/67/3*1'3*=*(&;'
2!3./(!-&;' A/(D3'8/4*' /4' .2*' 30--*33/(3' /,'
;*0&41*(9' &' A*;;' A(!..*4' 7*(,/(6&4-*'
&41' &' 1*3-(!7.!/4' /,' .2*' *1' *&' !4',!=*'
</!D3' ,' .2*',/(6*(' /4;5'&',*A',(&>6*4.3'
(*6&!4' /,' .2*' ;&3.' 3/6*' -/43!1*(&<;*' *]'
.(&-.3',(/6' .2*',!(3.'&41',!,.2'</!D3
>J.2&(-203' ' (**D' 7&!4.*(' /,'
&6/3' .2*'!4=*4./(',3-*4*"7&!4.!4>' # '

> .2;&3' ,' 5(!4&' !4' 3!&' !4/(' &'
(**D' 7/*.' &41' 2!3./(!&4'</6'&</0.' V N'
';!=*1'&.' /43.&4.!4/7;*' &3'&K0(!3.'&41'
1!*1'&</0.' VR@' 5' 2!3' : ' &' -/;;*-F
.!/4' /,' 2!3' /A4' &41' -/4.*67/(&(5'7/*63'
./7!-&;;5'&((&4>*1'!4'*!>2.'</!D3'2*'2*;7*1'
./' /(!>!4&.*' .2*' (**D' *' # '
A2!-2'3.!;;' -/4.&!43' N *7!>(&63' <5'2!6'
4' 2!3' ;&3.' 5*&(3' 2*' A(/.*' !4' &' ;&</0(*1'
,!/(!1' 3.5;*' &' 2!3./(5' /,' 03.!4!&4' !4' ,!=*'
</!23'.(*&.!4>' /,' .2*' 5*&(3' ' VV@"R' !4'
-/4.!40&.!/4' /,' (/-/7!03
>&.,! 1&*6/4'8_'>//1'1&*6/49' 4' (**D'
65.2/;/>5' &' >//1' 37!(!.' /,' .2*' -/(4,!*;13'
&41' =!4*5&(13' ./' A2/6' ;!<&.!/43' /,' 04"

6!0*1'A!4*' .=*(*' 6&1*' &.' 6*&;3' 4' A/(D3'
/,' &..' 2*' !3' (*7(*3*4.*1'&3'&' 5/0.2' 2/;1!4>'
!4' /4*' 2&41'&' 2/6' /,' 7;*4.5' &41'&'</A;' !4'
.2*' .2*(' &' 7/775' &41' *&(3' /,' -/6' #$ '
+) ,
>J.214' ' .(&>!-'7/*./,' .2*43'</6'
'CCR' &' ,(!*41'/,' 0(!7!1*3' &41' ;&./'
04!=*(3&;;5' -*;*<(&.*1',/(' 2!3' <*&0.5' &41'
(*,!4*1' -0;.0(*' 2*' <&4:0*.' 2*' >&=*' !4'
2/4/0(' /,' 2!3' 1(&6&.!-' =!-./(5'/,' ('C$U'
!3'!66/(.&;!Q*1'!4' ;&./3' : G)G"' *'
A&3'./>*.2*(' A!.2' 0(!7!1*3'&.' .2*' -/0(.'
/,' (-2*;&03' D!4>' /,' &-*1/4!&' &41' 7(/F
<&<;5'1!*1'.2*(*'&</0.' ('CN@' *'&77*&(3'
./'2&=*'-&((!*1'3.!;;',0(.2*(' .2*' (2*./(!-&;'
6&44*(' /,' 0(!7!1*3'&1/7.!4>'*4.!(*;5'.2*'
=!*A3' /,' .2*' 3/72!3.' /(>!&3" &41' 2!3'
&&!&<5"7&6<K'3.5;*' !3' (!1!-0;*1'<5' (!3. "
72,/*3' 4' .2*' 3.&>*'2*'!4.(/10-*1'3*=*(&;'
!44/=&.!/43M' 2*' A&3' .2*' ,!(3.'./' 6&D*' .2*'
-2/(03' &' 6*(*' !4.*(6*QQ/'2&=!4>' 4/.2!4>'
./'1/'=1.2' .2*' &-.!/4'&41' !4' 2!3' .(&>*15'
/,' " ' 8!',;/A*(9' 2*' !4=*4.*1'</.2'
-2&(&-.*(3' &41' 7;/.',/(' 2!63*;,'!43.*&1'/,'
(*3/(.!4>'./'/;1'65.23
>C=V'8 (' 1 ' &0>2.*(' /,' &1603'
&41'A!,*'/,' -2!/4' 2*'A!.2'./.2*('A/6*4'
!4' &' <&--2&4&;!&4' ,(*4Q5'
./(*' ./' 7!*-*3' 2*(' /A4' 3/4'
*4.2*03'#
,1!3.!3' '-
>*3' !4-*' .2*' .!6*' /,'
3!/1'.2' (**D3'&41'.2*'
/6&43' &,.*(' .2*6' >*4*F
(&;;5'&330 6*1' .2*' *O!3.*4-*'
/,',/0(' &>*3
8$9' 2*' &>*' /,' >/;1' !4' ' '
A2!-2'^(4 3' /(' &.0603' ' ' '
A&3' D!4>' 0(!4>' .2!3' '
7*(!/1'6&4D!41'*4K/5*1'7*(F 8 *6'!4' (!.!32'
03*06 9
7*.0&;'5/0.2'K/5'&41'7*&-*'
041!3.0(<*1' (*&7!4>' !4' .2*!(',0;4*33' .2*'
,(0!.3'A2!-2'.2**&(.2'37/4.&4*/03;5'<(/0>2.'
,/(.2' *&.2' -&6*' 07/4' .2*6' ;!D*' &'3/,.'
3;06<*(" &41' &,.*(' !.' .2*5' <*-&6*' >//1'
H I" J'A&.-2!4>' 6*4' ;!D*' >0&(1!&43'!4'
.2*!(' 1**13' /,' K03.!-*' &41' !4K03.!-*' &41'
2/=*(!4>'(/.61.2*6'A!.2'>!,.3'/,'A*&;.2
8@9' 2*' >/;1*4' &>*' A&3' 30--**1*1' <5'
.2&.' /,' 3!;=*(' 2!3' A&3' !4,*(!/(' ./' .2*'
>/;1*4'</.2'!4' 7253!-&;' &41' 6*4.&;' ,/(-*'
2*'7*/7;*'/,' .2*' &>*' (*6&!4*1',/('
&2041(*1'5*&(3!4'.2*-/41!.!/4/,'-2!;1(*4'
3!67;*'&41' A*&D;5' =*4'!,' .2*5'&..&!4*1'
6&.0(!.5' .2*!(' ,/;;5' &41' &((/>&4-*' 7(*F
=*4.*1' .4*!(' ;!=!4>' ;/4>' 2*5'-/4.!40*1'
./' *O!3.' &,.*(' 1*&.2' &3' 37!(!.3';!=!4>'<*F
4*&.2'.2**' *&(.2'<0.'4/.'!66/(.&;
8 9' L*03'.2*4'-(*&.*1'.2*' <(&Q*4' &>*'3/d"

,(/6 7&5!4> (*4. 4 .2* -!=!;' A&(3 /,' 0;;&' .2* >*(' 0<;!-03 !4' .&;5' A2!-2' 2&1'<**4' 4*&(;5'&;;'03*1' 07' !4' &33!>4&.!/43' (*-*!=*1' 3/' =&3.' &4' !4-(*&3*' <5' .2* *OF .*(6!4&.!/4' /,' A2/;* ./A432!73' <5' 7(/F 3-(!7.!/43' &41' -/4,!3-&.!/43' .2&.' *=*4' &,.*(' &;;'.2* 3/;1!*(3' 2&1'<**4' 7(/=!1*1' ,/(' .2*(* (*6&!4*1' &' 7/(.!/4' 041!3.(!<0.*1' 41*(' .2* 67!(* .2*(* A&3' 2&(1;5' &45' ;*,' !4' .&;5' A2&.' .2*(* A&3' A2*.2*(' !4' .&;5' /(' !4' .2* 7(/=!4-*3' -&6* >(&10&;;5' 041*(' .2* -/4.(/;' /,' .2* !67*(!&;' *0-2*:0*(

>*3&41*(' 8 (' 1 " ' ' (**D' &(.!3.' /,' .2* 3-2//;' /,' 2/1*3' 2* -*;*F <(&.*1' >(/07' /,' .2* &?-/?4' !3' .2* K/!4.' A/(D'/,' >*3&41*(' .2*4/1/(03'&41' /;5'' 1 (03' # ' &$ $$* (

>>*(' 4' /6&4'3!*>*"A/(D3'.2* 4/441' /(' *6<&4D6*4.' (&!3*1' &>&!43.' &4' *4*65 3' A&;;3' # ' 1 #(

>;&!&' 4* /,' .2* (&-*3' # ' & #(

>4&.!/' 2* &.!4' 4&6* ,/(' .2* (*;&.!/432!7' /,' (*&;' /(' &1/7.!=*' 1*3-*4.' ,(/6' /4* ,&.2*(' A2!-2' A&3' 4*-*33&(!;5' *07(*33*1' <5' !1*4.!.5' /,' -;&4"4&6* # ' & ' @ 9' ' <(/.2*(' &41' 3!3.*(' A*(* 1" ' <0.' 2*(' -2!;1(*4' A*(* 4/' ;/4>*(' 1" ' ./' 2!3' .',!(3.' 1" ' &;/4* A*(* *4.!.;*1' ./' !42*(!.' 7(/7*(.5' /(' &-.' &3' >0&(1!&43" !.' A&3' <0.' >(&10&;;5' .2&.' .2* 1" ' # ' -&6* ./' 2&=* &' 7;&-* <5' .2*!(' 3!1* .!;;' 03.!4!&4' &</;!32*1' .2* (!>2.' /,' &>4&.*3' &41' <(/0>2.' .2&.' /,' -/>4&.*3' ./' -/67;*.* (*-/>4!.!/4

>/4' 2* (**D' 4&6* ,/(' &' 603!-&;' 8'_'&(.!3.!-9' /(' >56 4&3.!-' -/4.*3.' 2* 06F 7!(*3' A2/' -/410-.*1' .2*6' &41' >&=* &A&5' .2* 7(!0*3' A*(* -&;;*1' 1 " (@' 8 4' .2/3* A2/' /,,!-!&.*1' &.' 3-*4!-' >&6*3' !4' .2*43' & &(' ./ 6* 30-2' -/4F .*3.3' 6/1*;;*1' /4' .2/3* /,' .2* (**D3' <*-&6* ,(*:0*4.' <*,/(* .2* ,&;;' /,' .2* *F 70<;!-' 041*(' .2* 67!(* .2*5'-&6* (/041' &.' 7*(!/13' /,' 3*=*(&;' 5*&(3' ;!D* .2* >(*&.' (*-!&4' >&6*3' 2* 6/3.' ,&6/03' /,' &;;' A2!-2' 2*;1' !.3' >(/041' ./' .2* *41' /,' &4.!F :0!.5' A&3' .2* 1 "' $ " ' ,/041*1' <5' /6!.!&4' !4' R?' & " '&41' (*-0((!4>' *=*(5' ,/0(' 5*&(3' *' 2&1' &4' 1*06' # ' <0!;.' ,/(' .2* 603!-&;' 7*(,/(6&4-*3' &41'&' . 1!<4' ,/(' .2* &.2;*.!-' -/6<&.3' </.2' !4' .2* &6703' &(.!03' 4/.2*(' >(*&.' 1 "' A&3' 2*;1' !4' @CR' & " ' !4' 2/4/0(' /,' .2* -!.5' 2&=!4>' 3./!/,' .2/03&41' 5*&(3

>/4<.2<.*3' ' 1 $ *

>1(&'8_'&33*6<;59' 2* (**D'4&6* ,/(' .2* 6&(D*."7;&-*' &' -/43*-(&.*1' /7*4' 37&-*' A2!-2' !4' -/&3.' ./A43' 030&;;5' ;&5' /4' .2* 3*&3!1*' !4' !4;&41' ./A43' &.' .2* ,//.' /,' .2* -&3.;* 2!;;' 3' .2* -*4.(* /,' .2*-!.5';!,*' -/66*(-!&;' 7/;!.!-&;' &41' (*;!>!/03' !.' A&3' &1/(4*1' A!.2' .*67;*3' 3.&.0*3' &41' 70<;!-' <0!;1!4>3'&41' 7;&4.*1'A!.2' .(**3' *37*-!&;;5' 7;&4*3' d 2*4' 4*A;5' <0!;.' /(' (*<0!;.' !4' ;&.*' .!6*3' !.' A&3' >*4*(&;;5' 3:0&(*' &41' 30(F (/041*1' <5' -/;/44&1*3' 4' 6/3.' ./A43' !.' A&3' .2* 7;&-*' ,/(' &33*6<;!*3' /,' .2* 7*/7;*

>1(& (!.03' ' (**D' &(.!3.' /,' &(/3' A2/' ;!=*1' !4' .2* ;&..*(' 2&;,' /,' .2* V.2' -*4.0(5' ' &41' A&3' 1',&=/0(!.* 707!;' /,' 2!1!&3' !3' 4/<;*3.' A/(D' A&3' -/43!1*(*1' ./' <* .2* 3.&.0* /,' <6 3!3' CN' ,**.' !4' 2*!>2.' A2!-2' 3/6* K01>*3' /4' &--/04.' /,' !.3' *0-*;;*4-* ' .//D',/(' &' 7(/10-.!/4' /,' .2* *;1*(' &(.!3.' 4' &45' &3* !.' A&3' 3&!1' .2&.' 2!1!&3' 2&1' &;;/A*1' .2* 4&.4* /,' >/(&" -(!.03' ./' <* !43-(!<*1' /4' 3*=*(&;' /,' 2!3' A/(D3

>,!(` 4V60R'8_ 6&(D*."6&3.*(9' 4' 6&45' (**D' ./A43' &' 6&>!3.(&.* 3/6*A2&.' (*F 3*6<;!4>' .2* /6&4K*1!;* ' .2*43'.*4' 1 " 'A*(* -2/3*4'<5' ;/.' *=*(5'5*&(' ,!=* ,/(' .2* -!.5' &41' ,!=* ,/(' .2* 7/(.' /,' !(&*03' 2*5' ;//D*1' *37*-!&;;5' &,.*(' .2* (*.&!;' .(&1* >&=* 3.(&4>*(3';*&=* ./' *4>&>* !4' !.' .*3.*1'A*!>2.3' &41' 6*&30(*3' &3'A*;;' &3' .2* :0&;!.5' /,' >//13' -/4,!3-&.!4>' &41' 1*3.(/5!4>'A2&.' A&3'37/!;.' !*5'3*..;*'1!3F 70.*3'<*.A**4'<05*(3'&41'3*;;*(3'/4'.2*'37/.' /(' !,' &'30!.' &.';&A' A&3' 4*-*33&(5" 7(*3!1*1' /=*(' !.' f (!3./.;* 3$ " ' ' (" !' - 'V$g

>(&0;V3' &0>2.*(' /,' *-(/73'# =

>(!-0;.0(* 8$9' >(!-0;.0(*'A&3'!4' (**-*' &';*&1!4>'!4103.(5'&.';*&3.'&3'*&(;5'&3' /6*(' 2*' 3/!;' A&3' 3.0<<(/4',*(.!;*' 7;&!43' <*!4>' -/67&(&.!=*;5',*A '&41' 6/04.&!43'&41'(//B' >(/041' 7(*7/41*(&.!4>' 0.',&=/0(*1' <5' &' >*4!&;' -;!6&.*' &>(!-0;.0(*' A&3' -&((!*1'/4' &;6/3.' *=*(5A2*(*' A!.2' &' Q*&;' ./' A2!-2' .2* A&4.3' /,' &' 1*43*' 7/70;&.!/4' &11*1' .2*!(' 3.!60;03' 2&.' !.' A&3' (*>&(1*1' &3' .2* =*(5'>(/041A/(D' /,' 3/-!&;' !,*' !3' 32/A4' <5' .2*' ,&-.' .2&.' !.3'>0&(1!&4'>/11*33' *6*.*(' 8 &.' *(,!39'7(*3!1*1'&;3/' /=*('A*1;/-D' &41' ;&A' .' A&3' ;//D*1' 07/4' &3' .2* 6/3.' ;*>!.!6&.*' A&5' /,' *&(4!4>' &' ;!=*;!2/1' A&3' -&((!*1' ./' .2* 2!>2*3.' 7!.-2' !4' .2* *;/7/44 303' A2*(* *=*(5' 3-(&7' /,' 0;.!F =&<;* 3/!;' A&3' 6&1*' ./' 5!*;1' !.3' -(/7' &3' 6&5' <* 3**4' ./' .2!3' 1&5' <5' .2* &(.!,!-!&;' .*((&-*3' .2&.' 3-&(7' *=*(5' 6/04.&!4"3;/7* 0-2' -&(* A&3' <*3./A*1' /4' !((!>&.!/4' -&(-!.5' /,' A&.*(' A&3' 077;*6*4.*1' <5' &(.!,!-!&;' 6*&43" 7(/=!3!/4'A&3' 6&1*' &>&!43.' !((*>0;&(" <0(3.3' /,' 6/04.&!4' ./((*4.3' <5' *6<&4D!4>' &41' (*>0;&.!4>' .2* 4&.0(&;' /0.F ;*.3'A2!;*' 6/!3.';&413'A*(* -2&44*;;*1'&11

3.&>4&4.' "A&.*(3 1(&!4*1 &.*(' "A&3 1!3F .(!<0.*1 *=*(5A2*(*' <5 1!.-2*3 &41 -&4&;3 041*(' .2*' 307*(=!3!/4 /,' .&.*' /,,!-!&;3" &41 ;&A3 /,' &4-!*4.' 1&.*' >0&(1*1' &>&!43.' .2*' 04,&!(' 03*' /,' & &.*("-/0(3*' ./' & 4*!>2</0(3 1&6&>*

2*' ;&41' A&3 6&!4;5' -0;.!=&.*1' <5' 3;&=*3 &41 3*(,3 .2/0>2' ,!*;1";&</0(' A&3 4/.' G1**6*1 1!32/4/0(&<;*' ./' .2*' ,(**6&4 *OF -*7.' A2*(*' ;&A &41 -0;3./6' ,/(<&1*' 2!3 *4>&>!4>' !4' &45 3/(.' /,' 2&41!-(&,.' &3 &.' 7&(.& 4' 3/6*' -/04.(!*3 *37*-!&;;5 ("" "-&1!&' .2*' /;1"A/(;1 7;&4' /,' *=*(5 6&4' .!;;F !4>' 2!3 ,!*;1 A!.2 2!3 /A4 2&41(*6&!4*1 !4 ,/(-*' ./' .2*' ;&.*3.' .!6*3 &41 *=*4 *6!4*4.' 3.&.*36*4 ;!D*' 2!;/7/*6*4 A/0;1 4/.' >!=*' !.' 07 /0(' D!413 /,' >(&!4 A*(*' -2!*,;5 >(/A4 A2*&.' <&(;*5 &41 .A/' D!413 /,' 37*;.' ./' &;' /,' A2!-2 .2*' -;!6&.*' &;;/A*1 .A/' 3/A!4>3 !4' .2*' 5*&(' <*3!1*' 6!;;*.' 3*3&6*' =&(!/03 ;*>06!4/03 7;&4.3' &41 3*=*(&;' 3/(.3 /,' 2*(<&>*' ,/(',/11*(' !.2 4/' ;*33 1!;!>*4-*' A&3 (**D 203<&41(5 &7F 7;!*1 ./' >&(1*4!4>' *37*-!&;;5 ./.2*' -0;.!=&F .!/4/,' .2*' =!4*' 2!3' A2!;*' 3.*&1!;5 70(F 30*1 /4 .2*' 6&!4;&41 A&3 1*=*;/7*1 ./' &4 *0.(&/(1!4&(5 *0.*4.' !4' .2*' !3;&413 6/3./,' A2!-2 /A!4>'./' .2*!(' 6/04.&!4/03-2&(&-.*(' 1!1 4/.' &,,/(1 .2*!(' !42&<!.&4.3 30,,!-!*4.' &(&<;*' 3/!;' 4' /;!=*"-0;.0(*' 4/' 7&(.' /,' (**-*' -/67*.*1 A!.2' ..! &' A2!-2 &;3/' 7(/10-*1 .2*' <*3.',!>3' .2*',(0!.6/3.'"A!1*;5' %-0;.!=&.*1 ^!.-2*4">&(1*4!4>' A&3 7(&-" .!3*1 /4 .2*' ;&(>*3.' 3-&;*' !4' /*/.!&' /4F 3!1*(!4>' .2*' *4/(6/03 -/4306 7.!/4 /,' ",;/A*(3 !4' A(*&.23' .2*' (*&(!4>' /,' .2*6' *3F 7*-!&;;5'/,' .2*'(/3*';!;5 4&(-!3303K &41'=!/;*.' 603.' 2&=*' <**4' &' ;0-(&.!=*' <03!4*33' &.' ;*&3.' !4' .2*' 4*!>2</0(2//1' /,' >(*&.' ./"A43' *&1/A",&(6!4>' A&3 /,' 4*0.' ./' 4/' !67/(.F &4-*' ,*A' 1!3.(!-.3 2&=!4>' &3/!;' &1&7.*1 ,/(' !.' &41 30-2 6*&1/A3 &3 .2*(*' A*(*' <*!4>' 03*1 ,/(' 7&3.0(*' (&.2*(' 2&56&D!4>' 8@9' 4' ' :' 4' .&;5' &;3/' .2*' *0!3.*4-*' 4' .2*3*' <*3!1*3 .2*' >(/A.2' /,' .2*' -/6604!.5' "A&3 (*>&(1*1 &3' <&3*1 07/4' &>(!-0;.0(*' 2!3 !3' 7(/=*1 <5' .2*' 7(&-.!-*' /,' 6&(D!4>' .2*' 3!.*' /,' .2*' ,0.0(*' A&;;3 /,' &' 4*A' ./A4' <5' &' ,0((/A' 1(&A4' A!.2' .2*' 7;/0>2' .' /6*' *37*-!&;;5' .2*' </15 /,' !((*6/=&<;*' 7*&3&4.(5';/!>',/(6*1 .2*' -/(*/,' .2*' -/66/4A*&;.2' 4' 7/;!.!-&;' ;!,*' .2*' ,(**' 7*&3&4.' A&3 .2*' /4;5' ,&-./(' 2*;1' !4' &--/04.' &41' &--/(1!4>;5' !4' A&(' .2*' /<K*-.' A&3 ./' !4-(*&3*' .2*' 406<*(' /,' ,(**' 7*&3&4.3 <5' 7;&4.!4>' .2*6' /0.' /4' &3' 60-2' /,' </(1*(;&41 &3 -/0;1' <*' A(*3.*1',(/6' .2*' *4*65' 4' *&(;5' .!6*3 &>(!-0;.0(*' A&3 !2/0>2.' .2*' /4;5' (*37*-.&<;*' -&;;!4>' !4' A2!-2' & /6&4' -!.!Q*4' -/0;1' *4>&>*" &41 6&40&;' ;&</0(' /4' .2*' ;&41' A&3 2*;1' !4' 04F :0&;!,!*1' *3.** 6' &41' &3 <(!4>!4>' 4/' 1!3>(&-*' *=*4 07/4' 7*(3/43 !4' 2!>2' 7;&-*

03<&41(5' A&3 6&!4;5" 1!(*-.*1 ./' .2*' (&!3!4>' /,' >(&!4 .2*' /(1!4&(5' -*(*&;' <*!4>' &.' ,!(3.' 37*;.' .!;;' !4' .2*' V.2' -*4.0(5' A2*&.' <*>&4' ./' .&D*' &7;&-*' <*3!1*' !.' 2*5' &;3/'-0;.!=&.*1'<&(;*5'6!;;*.' &41';*>06!4/03 7;&4.3' &3 A*;;' &3 .0(4!73'>(**43' &41' 2*(<3' ,/(',/11*(' 4' !((!>&.!/4' &41' 1(&!4&>*' .2*' .&;!&43'<*3./A*1'60-2' 7&!43' 2*5' 2&1' 4/' ;&-D' /,' >(&33";&413' *!.2*(',(' 7&3.0(*' /(' 2&56&D!4>" &41 ,(/6' &4' *&(;5' .!6*' .2*3*' A*(*'&(.!,!-!&;;5' A&.*(*1' 2*-0;.!=&.!04'/,' .2*' =!4*' &41' /;!=*' *0.*41*1' &3' .2&.' /,'>(&!43 1*-;!4*1' 83**' <*;/A9h' 3/' 1!1' .2*' >(/A.2' /,' /(-2&(1",(0!.' A2!-2' 041*(' .2*' ;&.*' *70<;!-' &41' .2*' *&(;5' 67!(*' (*-*!=*1' &' =&3.' *07&43!/4' </.2' ,(/6' .2*' !67(/=*F 6*4.' /,' 4&.!=*' D!413' &41' .2*' !4.(/10-.!/4' &41' 4&.0(&;!Q&.!/4' /,' 6&45',/(*!>4',(0!.3' 4'*6(;!*(' .!6*3' .2*' 7(!6*' ,,!=/4!!.*' &6/4>' ,(0!.' .(**3' 2&1' <**4' &3' !4' (**-*' .2*' 40.(!.!/03' ,!>' >(!-0;.0(*' 7(/7*(' A&3 (0!4*1'<5' .2*' &-:0!3!.!/4/,' .2*' ,!(3.*0.(&" .&;!&4' 7/33*33!/43' !-!;5' &41' &(1!4!&",/(' .2*' -/6' 3077;!*1' <5' .2*' 7(/=!4-!&;3' &3' .(!" <...*' !4' D!41' <*>&4' ./' <*' 03*1' 4/.' /4;5' !4' KO/"=!3!/4!4>' .2*' &(6!*3' <0.' !4' ,**1!4>' "82* 0(<&4' 7/70;&.!/4' 8,!) & .2*' .&.*' ./' 206/0(' .2*' (&<<;*' /,' /6*' 3/;1' .2!3' /(4' &.' .2*' ;/A*3.' 7/33!<;*' 7(!-*3' 3/6*.!6*3' *=*4' <*;/A' !.3' =&;0*' .2*' >(/A.2' /,' -*(*&;3' -*&3*1' ./' <*' 7(/,!.&<;*' ,&(6*(3' D*7.' !.' 1/A4' ./' & 6!4!606' &41' .//D' ./' -&..;*"<(**1!4>' /(' (&!3!4>' A!4*' &41' /!;' 2*3*' <(&4-2*3' /,' !4103.*5' 4/.' /4;5' ,;/0F (!32*1' !4' .2*' ,&-*' /,' -/67*.!.!/4' <0.' "A!.2' K01!-!/03' 6&4&>*6*4.' A*(*' 2!>2;5' (*60F 4*(&.!=*' 2*'1*&.2"<;/A' A&3' >!=*4' ./' .2*' .&;!&4' 7*&3&4.(5'<5' .2*' !4-(*&3!4>' *67;/5F 6*4.' /,' 3;&=*3' &41' .2*' &<3/(7.!/4' /,' 36&;;' ,&(63' !4' ;&(>*' *3.&.*3' 83*-' ! 0! 9;.U 9' /,' .2*' -/6604!.5' "A&3 (*>&(1*1 &3' <&3*1 07/4' &>(!-0;.0(*' 2!3 !3' 7(/=*1 <5' .2*' 7(&-.!-*' /,' 6&(D!4>' .2*' 3!.*' /,' .2*' ,0.0(*' A&;;3 /,' &' 4*A' ./A4' <5' &' ,0((/A' 1(&A4' A!.2' .2*' 7;/0>2' .' /' !((*6/=&<;*' 7*&3&4.(5';/!>',/(6*1 .2*' -/(*/,' .2*' -/66/4A*&;.2' 4' 7/;!.!-&;' ;!,*' .2*' ,(**' 7*&3&4.3' <5' 7;&4.!4>' .2*6' /0.' /4' &3' 60-2' /,' </(1*(;&41 &3' -/0;1' <*' A(*3.*1',(/6' .2*' *4*65' 4' *&(;5' .!6*3' &>(!-0;.0(*' A&3'

./' <*' *!.2*(' <0(4.' /(' 0.!;!Q*1' ,/(' 6&40(*'
2*' 7(/-*33' /,' .2(*32!4>' A&3' =*(5
1*,*-.!=*' 8 /(' &4-!*4.' A/(D3' /4' 203F
<&41(5' '8 $)$, (
>(!6*431(*3' 2*' &.!4'4&6*',/(';&41"
30(=*5/(3'/.2*(A!3*'-&;;*1'1 ',(/6'
1 '.2*!(' 6*&30(!4>' !43.(06*4.' 2!3'
-/43!3.*1'/,'.A/'1!/7.(!-'(/13'-(/33!4>'*& 2'
/.2*(' &.' (!>2.' &4>;*3' &41' ,&3.*4*1' /4' &4'
!(/4' 3.&41' 3/' &3' ./' .0(4' 2/(!Q/4.&;;5" /4'
.2*' ,/0(' &(63'3.//1' ,/0(' 07(!>2.' 8
A!.2' .2(*&13'3.(*.-2*1'&-(/33'.2*' 2/;*3'&4&'
!4' .&D!4>' /<3*(=&.!/43' .2*' .2(*&13'/,' .A/'
/77/3!.*' '2&1' ./' -/=*(' *&-2' /.2*('
B*' 6*&30(!4>'A&3'1/4*' /4'.2*' 3&6*' 7(!4F
-!7;*' &3'.2*' 6&(D!4>"/0.' /,' &' '<5'
.2*' 0>0(3' =!Q'<5'1(&A!4>'!4'.2*
-*4.(*' /,' .2*' 7!*-*' /,';&41' .A/';!4*3' !4.*(F
3*-.!4>'&.' (!>2.' &4>;*3'/4*',(/6'4/(.2'./'
3/0.2' & ' " ' .2*' /.2*(',(/6'
*&3.'./' A*3.' & " ' " - 9" .2*'
,0(.2*(' 1!=!3!/4'/,'.2*'>(/041'A&3'*,,*-.*1'
<5'7&(&;;*;3' ./' .2*3*' ;!4*3' & ' .'
A&3'4/.'04.!;'.2*'!67*(!&;'7*(!/1'.2&.';&41"
30(=*5!4>'<*-&6*' &'3*7&(&.*' 7(/,*33!/4'
2*4' 30(=*5/(3' A*(*' 7(*7&(*1' !4' 37*-!&;'
3-2//;3' &41' &77/!4.*1'<5'.2*' .&.*';</.2'
,/(':0&(.*("6&3.*(3' 10.5'!4' -&67' &41',/('
6*&30(*6*4.3' 041*(' /=*(46*4."' .2*5'
1*-!1*1' &3' K!!1>*3' !4' ,!0!4>' </041&(!*3'
&41' A*(*' -/430;.*1' &3' 37*-!&;!3.3' !4' 1!3F
70.*3' &,,*-.!4>' ;&41' 203' &' ;!.*(&.0(*'
&(/3*' 2&;,' 6&.2*6&.!-&;' 2&;,' ;*>&;' .2*'
(*6&!43'/,'A2!-2'*0.*41'/=*(' .2*',!(3.'3!0'
-*4.0(!*3' ' 2*' *&(;!*3.'/,' .2*3*' 1 F
'/(' A(!.*(3'/4';&41"6*&30(*6*4.'!3'
(/4.!403'&1 ',(/6'A2/3*'A/(D'A(!..*4'
,(/6'R$"T?' '&41'1*&;!4>'6/(*'A!.2'.2*'
;*>&;' 3!1*'/,' .2*' 30<(*-.'*0.(&-.3'&(*'7(*F
3*(=*1' !4' .2*' -/66*4.&(5'/,' >>*403'
(<!-03' 5>!403' &;<03' &41' 7(/<&<;5'
!- ;03' ;&--03',;/0(!32*1'!4'.2*'.!6*'/,'
(&K&4";&.*('3.!;;' !7303' 44/-*4.!03'&41'
>>*403
>(!77&'# '= " '/(4' '
? '1!*1' ' '$@' *'A&3'.2*',(!*41'3/4"!4"
;&A'>*4*(&;'&41'6!4!3.*('/,' 0>03.03' *'
A&3'&;3/'&'37*&D*('&41'A(!.*('/,'3/6*'1*F
70.*' 41*(' 2!3'307*(=!3!/4'A&3'-&((!*1'
/0.'.2*'>(*&.'30(=*5'/,'.2*' /6&4'*45%!(*'
A2!-2' 3*3&(' 2&1'<*>04'!4'CC' ' !.2'
.2*'2*;7'/,'.2*' 6&.*(!&;3'.203'/<.&!4*1'2*'
-/43.(0-.*1'&'-!(-0;&(' &7'/,'.2*' /(;1'
</0.'4 0'U' 0>03.03'2&1'!.'*4>(&=*1'/4'&'
;&(>*'3-&;*'!4'6&(<;*'&41'3*.'07',/('70<;!-'
03*'!4'.2*' -/;/44&1*'<0!;.'<5' >(!77&'3'
3!3.*(' /;;&' & ' , ' .' 6&5'<*'
(*>&(1*1'&3'.2*'3/0(-*'&41'6/1*;'/,'&;;'
30--**1!4>'&!13'./' >*/>(&725' *37*-!&;;5

.2*' .!4*(&(!*3' # ' &41' .2*' -0.!4>*('
G &<;*' '</!D' /4' .2*' (*30;.3'/,' .2*'30(F
=*5' A2!-2' >(!77&'<&1' <*>04' A(!.!4>

' ' ' (3'. ' '+ '@U'
8 *(;!4' &**06 9
' *J1'/,' >(!77&'A*&(!4>'.2*'-/(/4&' KL-
'2,*7.0 *'A!.2' /;72!4'&41' (!1*4.
/4&.&3'-/430;./

A&3'-/4.!40*1'&41'70<;!32*1'<5'/(1*(' /,'
0>03.03'041*(' .2*' .!.;*'/,'$(1 (
>5!*43' '.!.;*'/,' 7/;;/'& '&3'>/1'
/,' .(**.3'&41'2!>2A&53
!&3'8 &.' - ' 8 9' /4'/,'.2*' /-(!&4'
D!4>' ,;*03'2*4-*' -&;;*1'.2*' /-(!&4'/(
33(' !&3'!4'-/4.*&3.'./'.2*' *;&6/4!&4'
4',/(.5'32!73'2*';*1'.2*' /-(!&43'./' (/5i'
A2*(*'4/.A!.23.&41!4>'2!3'36&;;'3.&.0(*'
&41',!>2.'*:0!76*4.'2*'1!3.!4>0!32*1'2!6F
3*;,'<*3!1*'2!3'>!>&4.!-'4&6*3&D*'*37*-!&;;5'
!4'.2*'<&..;*'<5'.2*'32!73'&41'.2&./=*('.2*'
</15'/,' &.(//;03' *'A&3'(*4/A4*1',/("
20(;!4>' .2*' 37*&(' &41' &3'G.2*' 3A!,.*3.'
(044*('4*0./-2!;;*3' 4'2!3'=/5&>*'2/6*'
./'&77*&3*' .2*' &4>*('/,' .2*'4&'2*'30,,*(*1'
32!7A(*-D' /4' .2*' 5(3*&4' (/-D3' /,' .2*"
!3;&41',' KB- 4<3'/('8&--/(1!4>'./'&4/.2*("'
3./(59'/4'.2*'3/0.2*(46/3.'7/!4.'/,' 0</*&'
/3*!1/4'!41**1'(*3-0*1'2!6'/4'.2*'(/-D3'
<0.' A2*4' 2*' </&3.*1' /,' 2&=!4>' *3-&*7*1'
&>&!43.'.2*' A!;;'/,' .2*' >/13' .2*' 3*&"D!4'>"
A!.2'2!3'.(!1*4.'36/.*',,'.2*'(/-D'/4'A2!-2'
2*' 3&.'&41'2*' 3&4D'!4' .2*' A&= 3' &.*('
&--/04.3'3&5'.2&.' .2*' >/11*33'3' &4>*(' ,*;;'
07/4' 2!6'<*-&03*' &.' .2*' .&D!4>' /,' (/5'
A2*4' &33&41(&' 2&1' .&D*4' (*,0>*' &.' 2*('
&;.&(' &41'*6<(&-*1'2*('!6&>*'2*' ./(*' 2*('
&A&5'<5',/(-*' 3/' .2&.' .2*' 3.&.0*' ,*;;'
2/0>2' >&6*64/4'.//D'.2*' 6&!1*4',/(6'
2!6' .2*' (**D3',*,' .2*' /!!.(&>*' /4' .2*'
>/11*33'04704!32*1'&41'/4'.2*!('A&5'2/6*'
32*' "A(*&D*1'2*('A(&.2' /4' .2*' A2/;*' ,;**.'
' ;!D' /.2*('2*(/*3' A&3'3&!1' ./' <*' 3.!;;'
;!=!4>'"A!.2' -2!;;*3'!4'.2*'!3;&41'/,' *0-*'
2*' /*,!36'3' A/(32!77*1' 2!6' &3' &' 2*(/'
&41'&;A&53';*,.'&'=&-&4.'7;&-*' ,/('2!6'!4'
.2*';!4*'/,' <&..;*
8@9' /4'/,' *;&6 4'/,' ;J6!3'&41'2&;,"
<(/.2*('/,' *0-*('' -&;;*1'.2*' (*&.' !&3'
<*-&03*'2*'3.//1'2*&1'&41'32/0;1*(3'2!>2<(

.2&&' .2*' /.2*(' (**D' 2*(/*3' *' <(!4>3' .A*;=*' 32!73' ./' (/5' A2*(*' 2*' 7(/=*3' 2!6' 3*:,' 3*-/41' /4;5' ./' -2!;;*3' !4' 3.(*4>.2' &41' <(&=*(5" &41' A2!;*' .2&.' 2*(/' 2/;13' &;//,' ,(/6' .2*' ,!>2.' 2*' !3' .2*' 6&!43.&5' /,' .2*' -23*&43' *37*-!&;;5' A2*4' .2*' (/K&43' 2&=*' .&D*4' .2*!(' -&67' <5' 3./(6' &41' &(*' 7032!4>B' .2*' <&..;*' ./' .2*!(' 32!73' 4' .2*' 3.(0>>;*' /=*(' .2*' -/(73*' /,' &.(/-;03' 2*' &41' 2!3' 4&6*3&D*' .2*' 3/4' /,' !;*03' -/=*(' *4*;&..3' &41' *(4*3' A2!;*' .2*5' -&((5' /,,' .2*!(' ,&;;*4' -/6(&1*' 2*4' 2*.!3' /,,*(*1' .2*' &(63' &41' &(6/0(' /,' -2!;;*3' &3' &'7(!Q*' ,/(' .2*' A/(.2!*3.' .2*5' A*(*' &1K01>*1' 4/.' ./' !&3' <0.' ./' 2!3' /4;5' -/67*.!./(' 1533*03' (/K&4' -&7.!=*3' </(*' A!.4*33' .2&.' .2*' -&44!4>' /,' 1533*03' 2&1' 1/4*' .2*6' 6/(*' 2&(6' .2&4' .2*' &;/0(' /,' -2!;;*3' !&3' .2*(*07/4' &--/(1!4>' ./' .2*' 7/3." /6*(!-' ;*>*41' D!;*1' 2!63*;,' !4' &4>*(' &',**;!4>' 2*' 3.!;,' -2*(!32*1' &>&!43.' 1533*03' *=*4' !4' .2*' ;/A*(' A/(;1' 2*' ;&.*(' ;*>*41' (*;&.*3' .2&.' 2*' ,*;,' /4' 2!3' 3A/(1' .2*' >!,' /,' *-./(' &,..*(' .2*' 10*;' <*.A**4' .2*6' 0./,'2K3'<;//1'37(&4>' .2*' 70(7;*' ;!;5' /4' A2/3*' 7*.&;3' -/ ;1' <*' .(&- ' .2*' ,!(3.' ;*..*(3' /,' 2!3' 4&6*' !3' 6/406*4.' 3.//1' /4' .2*' 2/*.*&4' 7(/' 6/4./(5' A2*(*' 2*' 2&1' *4-&67*1' <*,/(*' (/5' &41' 07/4' A2!-2' .2*' A&=*3' &32*1' .2*' -/=*.*1' &(63' /,' -2!;;*3' &,.*(' .2*' 32!7'' A(*-D'/,' 1533*03' 3'.2*4&.!/4&;'2*(/',' &;&6!3'2*' 2&1' &'.*67;*' &41'3.&.0*' .2*(*' &41' &'5*&(;5',*3.!=&;' .2*' " # &41'2*' A&3' A/(32!77*1' &.' .2*43' A2*(*' .2*' .(!<*' !&4.!3' A&3' 4&6*1' &,.*(' 2!6' *' ./' /' A&3' 3077/3*1' ./' ;!4>*(' A!.2' -2!;;*3' !4' .2*' !3;&41' /,' *0-`' 5' **6*33&' 1&0>2.*(' /,' .2*' 2(5>!&4' D!4>' *0.2(&3' A2/6' 2*' 2&1'-&7.0(*1'!4'74*' /,' .2*'(&!13',(/6'<*,/(*' (/5' 2*' 2&1' &' 3/4' 0(B3 - 3' A2/' !3' 3&!1' ./' 2&=*' (*6/=*1',(/6' &;&6!3'./' ..!-&' A!.2'2!3'3/4'/('<(/.2*('72!;3*03'&41',/041*1',;/0(!32!4>',&6!;!*3' A2!-2' 7(/10-*1' 6&45' ,&6/03' 6*4' ,/(' !43.&4-*' !;.!&1*3' ;6/4K' ;-!<!&1*3' &41' .2*' 2!3./(!&4' 20-51!1*3' !1*3' & ? " ' '/ 0 K&O' ' &# ;&' 2*' &.!4' 4&6*',/('8$9' &' A!4>' !4' .2*' ;!4*' /,'<&..;*' !;;' .2*' *0.*43!/4'/,' .2*' -!.!Q*432!7' ./' .2*' .&;!&4' &;;!*3' .2*' A!4>3' -/43!3.*1' /,' .2*!(' -/4.!4>*4.3' ';' N ,//.' &41' $ RNN' 2/(3*' ./' *=*(5' -/430;&(' &(65' /,' .A/' ;*>!/43' 203' ' -&6*' ./' B6*&4' .2*' &;;!*1' -/4.!4>*4.' .2&.' -/67/3*1' &' A!4>' & ' $ $ ' &41' 1 $*(' 0.' !. 6*&4.' 6/(*' *37*-!&;;5' !4' -/4.(&3.' ./' .2*' -/2/(.3' .2&.' 6&1*' 07' .2*' !4,&4.(5' /,' .2*' &;;!*3' .2*' -&=&;(5' /,' .2*' -/4.!4>*4.' ' /4' &4' &=*(&>*' NN' 6*4' 8V' ' /,' ?N' *&-29' 0(!4>' .2*' !67*(!&;' 7*(!/1' A2*4' &;;' 6*' -&=&;(5' A&3' (&!3*1' !4' .2*' 7(/=!4-*3' .2*' 4&6*' /,' ' A&3' >!=*4' ./' &' -&=&;(5' 1!=!3!/4' /,' VNS' (' *;3*' $ NNN' 6*4' .2*' /4*' 1!=!1*1' !4./' $?' .2*' /.2*(' !4./' @C' ' 2*' & ' A*(*' -/66&41*1' <5' & ' 8@9' ' <&-D' (//6' !4' &' /6&4' 2/03*' ' ;&<&3.(& ' 1 ;&3.1(' 2*' (**D' .*(6',/(' &4' &=*4>F !4>' 1&*6/4' A2/' 1/>3' .2*' ,//.3.*73' /,' -(!6!4&;3' =!3!.!4>' .2*' 3!43' /,' ,&.2*(3' /4' .2*!(' /,,37(!4> ;<06' 2*' &.!4' A/(1' ,/(' &' </&(1' -2&;D*1' /(' 7&!4.*1' A2!.*' /4' A2!-2' 6&..*(3' /,' 70<;!-' !4.*(*3.' A*(*' 4/.!,!*1' !4' <;&-D' A(!.!4>' 4' .2!3' A&5' A*(*' 70<;!32*1' .2*' 5*&(;5'(*AA13' (.2*'7/4.!,*O8Y-*' * &3 #(' .2*' *1!-.3' /,' 7(&*./(3' & ' .2*' (/;;' /,' 3*4&./(3'.2*';!3.3'/,'K0(/(3'*,- ;-&*03' PS(' ' ,&6/03' ;5(!-' 7/*'/,' 5.;;*4`' !4' *3<3' &4' *;1*(' -/4F .*67/(&(5'/,' &772/' /A&(13'.2*'*41'/,' .2*' U.2' -*4.0(5' '&3'.2*'3-!/4'/,'&'4/<;*' 2/03*' 2*' 2*&1*1' .2*' &(!3./-(&.!-'7&(.5'!4' .2*!(' -/4.*3.3' A!.2' .2*' .5(&4.3' /,' 2!3' 4&.!=*' ./A4' 5(3;;03' *;&4-2(03' &41' /.2*(3' &4!32*1',(/6' 2/6*' 2*' A*4.' /4' (/6&4.!-' *07*1!.!/43' &3',(' &3' >57.' 2*4' .2*' .5(&4.3' A*(*' 70.' 1/A4' &41' 2!3',/(6*(' -/6(&1*' .2*' A!3*' !.. -03' A&3' -&;;*1' <5' .2*' 7*/7;*' ./' (0;*' .2*' .&.*' 2*' .//D' 07' &(63' &>&!43.' 2!6' &;3/' &3' &'.5(&4.' !4' 1!3F >0!3*' <0.' &..*67.!4>' ./',/(7*' 2!3' (*.0(4' 2/6*' 2*' ,*;;' !4./' .2*' 7/A*(' /,' 2!3' /77/F 4*4.' A2/' >*4*(/03;5',/(>&=*' 2!6' ,' 2!3',0(.2*(';!,*' 4/.2!4>' !3' D4/A4' !3' 7/*63' !4' .2*' ,,;/;K-' 1!&;*-.' &((&4>*1' !4' .*4'</D3' <5' .2*' ;*0&41(!&43' -/43!3.*1' /,' 2564 3' 7/;!.!-&;' 3/4>3' 8 2!-2' ,/(6*1' .2*' <0;D' /,' .2*' -/;;*-.!/49' 1(!4D!4>' 3/4>3' &41' ;/=*' 3/4>3' /,' A2!-2' A*' 2&=*' <0.' &',*A' 6!3*(F &<;*' ,(&>6*4.3' 4' .2*' /7!4!/4' /,' .2*' &4-!*4.3' 2!3' 7/*63' A*(*' A*;;*-/43.(0-.*1' A2!;*' .2*!(' ./4*' .&;;!*1' A!.2' .2*' ;/,.5' 7&3F 3!/4' &41' 6&4;5' =!>/0(' /,' 2!3' -2&(&-.*(' 2*' &;-&!-' 3.(/72*' 3/' 60-2' 03*1' <5' 2!3' &16!(*('&41'4/.' 4A/(.25'!6!.&./(' /(&-*' !3' 4&6*1' &,.*(' 2!6' f /(&' (*;!*,' (*7(*F 3*4.!4>' ;-**03' &41' &772/' ' &)) $ 9 ;* 6? `R' 8 (' ! " ' ' (**D' &(.!3./,' .2*43' /(' *64/3' &41' &' 707!;/,' 2!1!&3' A2/',;/0(!32*1' ./A&(13'.2*'*41'/,' .2*'V.2'-*4.0(5' ' /;;/A!4>' 2!3' 6&3.*(3

"""""""B

/4';*&(4!4>'.2*'.(0.2' *.3 2!3'3/43'./'A&5F
;&5'2!6'/4'2!3'(/&1'&41'(/<'2!6'/,';!B'
.(*&30(*'&41'2!3',;!,*"&41'.2*4' ;-63*/43'
.A/'3/43'&=*4>*' .2*!(',&.2*(3'1*&.2'/4'
.2*3*'60(1*(*(3' ;-63*/4';!D*'2!3',&.2*('
"*-*!=*1'1!=!4*'2/4/0(3'&,.*('1*&.2"2*'2&1'
D3&4-.0&(5'&.' 2*<*3'&41'&.' 3/72!3'&
!/43*/(&.*1'./6<
;*6&4'8 (' " ' 2*' ,/041*(' /,'
/(!&4';5(!-'7/*.(5'& 51!&4'/,'&(1*3' *'
+6*'./' 7&(.&!4'2!3'5/0.2'&3'&3;&=*'A&3'
'*.',(**'&41'3**63'*=*4'./'2&=*'(*-*!=*1'
2*'-!.!Q*432!7" 2*',;/0(!32*1'!4'.2*',&..*('
;&;,/,'.2*'U.2'-*4.0(5' -' *'&<&41/4*1'
'2*'/;1'0V6!-'/('1!.25(&6<!-'7/*.(5'A(!."
'*4'!4'2*0&6*.*(3'&41'-/67/3*1'!4'=&(!/03'
4*.(*3'5643'&*&43'(/3 1!&' &(.2*4!&'
-V;!&'&41' (/.!-3'.2*' ;&3.'/,'A2!-2'2*'
A&3'3077/3*1'./'2&=*'!4=*4.*1' !3'1!&;*-.'
A&3'.2*' /(!-'3/,.*4*1'<5' 7!-'&41' ;/;!-'
,/(63' ,'2!3'3!0'</D3'/,'7/*63'&',*A'
,(&>6*4.3'/4;5'&(*'7(*3*(=*1"/4*'&'(&.2*('
;/4>'/4*'A&3',/041'!4' >57.
;-6*4'8 (' " ' &0>2.*('/,'
;*-.(5 4'A!,*'/,' 672!.(5/4'8>0 9K6/.2*('
/,' *(&-;*3'<5'L*03' 4'2*('-/44*0!/4'A!.2'
2&1&6&4.253' ' &"& &* 0#' ,.*('
2*('3/43'.(&43;&.!/4'./'.2*'>/13'2*',;*1'
,(/6'.2*',&-*'/,' 0(53.2*03'./' .2*43'<+.'
A*4.'<&-D'./' 2*<*3'&41'1!*1'.2*(*'&.'&'
>(*&.'&>*' 2*'A&3'A/(32!77*1'&.' 2*<*3'
&41'2&1'&4'&;.&('!4'.2*'.*67;*/,' *(&-;*3'
&.' .2*43
;-514*'8 (' " ' 8$9' &0>2.*('/,'
)?;03'A!,*'/,' *50'& '@9 [8@9' 4*'/,'
.2*' ;*!&1*3
;-514*03'# + (I' /4'/,'(J"
&03'&41' 3*&'.2*'*;1*3.'&41' 6!>2.!*3.'/,'
2*'>!&4.3'A2/'-/0;1'4/.'<*'/=*(.&D*4'<5'
;*&.2'!4'2!3'/A4'<!(.27;&-*' *4-*'!4'
2*'A&('A!.2'.2*'>!&4.3' (-;*3'2&1'./'
(&>'2!6'&A&5',(/6' &;;*4*'<*,/(*'2*'
/0;1'D!;;'2!6'A!.2'2!3'&((/A3' *>*41'
3/'.*;;3'/,'&'>!&4.' ;-5/4*03'A2/'3./;*'
2*'/0*4'/,' *;!/3',(/6'.2*'!3;&41'/,'
(5.2*!&'&41'&3' *(&-;*3'A&3'-(/33!4>'
2*' 2(&-!&4'!3.2603'/,' &;;*4*'-(032*1'
A*;=*'/,'2!3'A&>/43'&41'.A*4.5",!=*' 6*4'
3(!.2'& 20>*'7!*-*'/,'(/-D'A2!-2'A&3'
2/A4'/4'.2*'37/.' 2*4'2*'20(;*1'!.'
.' *(&-;*3'2!63*;,' .2*' 2*(/'3.(0-D'!.'
a&-D'A!.2'2!3'-;0<'&41'D!;;*1' ;-5/4*03'
1.2'.2*'3&6*'<;/A
;1/<(&41!4! ^&((!&>*' ' & * *1
;*-./' 4*'/,'.2*' (**D'>/11*33*3'/,'
=*4>*&4-*' & ' (
;*0&41*(' 8 (' H " / ' 8$9'
5
8@9' - " ' 9 ' 8.2*' B./;!&49'/,
;*0(/4'!4' ,,!./;!&';!=*1'&//0.'ORN' -'&.'
;*OEY!1(!&'<*!4>'*67;/5*1'<5' ./;*65'!4'
&((&4>!4>'.2*'.(&>*1!*3'&41'3&.5(!-'1(&6&3'
!4'.2*' !<(&(5' *'A&3'&,.*(A&(13'&.'.2*'
-/0(.'/,' 4.!>1403' /4&.&3'!4'&-*1/4!&'
3'&'A(!.*('/,'.(&>*1!*3'2*'.=&3'(*-D/4*1'
/4*'/,'.2*'3/"-&;;*1' ;*!&1' *'&;3/'.(!*1'
2!3'2&41'&.'32/(.'*7!-3'&.'*7!>(&63'*;*>!*3B'
&41'.2*';!D*'/,'A2!-2'3/6*'>(&-*,;!;',(&>F
6*4.3'&(*'7(*3*(=*1
8,;,9' ,(**D'(!.*./(!1&4'/,'.2*'@23-*4F
.0(5' 3/4'/,'.2*'(2*./(!-!&4' 041 4!03'
*'-/67/3*1'&'A/(D' 4',!>0(*3'/,'37**-2'
/,'A2!-2'/4*'*0.(&-.'&41'&',(**' &.!4'=*(F
3!/4'<5' :0;;&' /6&4.!3'2&=*' 0(=!=*1
8C9' - " ' ' ('!4' &(!&'
&</0.'@NN' '-&;;*1'9-1 ' (''2!3'
3*(=!-*3'!4'*07/041!4>'.2*'1/-.(!4*'/,'
(!3./.;*'A(/.*'=&;0&<;*'-/66*4.&(!*3'/4'
3*=*(&;' (!3./.*;!&4'.(*&.!3*3'8*37*-!&;;5'
.2*' *.&7253!-39'&3'A*;;'&3'/(!>!4&;'A/(D3'
/4' &.*'&41' (**"A!;;'/4'.2*' /0;'&41'
/.2*(3
8V9' - " ' ' + '!4' 51!&'&'
(**D'7253!-!&4';!=*1'!4'.2*'?.2'-*4.0(5'
'1*' /6*'&41'6&1*'&'-&(*,0;'-/;;*-.!/4'
,(/6'/;1*('A(!.*(3'/4' .2*(&7*0.!-3'!4'
.A*;=*'</D3
;*0&41(&' &###&*" '
!1*0&41(!&4' *(!/1' 2#&& & !
;*0;D1D13'8_#A&(1!4>'/,'*=!;9' 4'*7!F
.2*.'/,' 7/;;/'&41' *(&-;*3
;*0!3' ;*0!3'&41' 4.;72C4*3'A*(*'.2*'
6/3.'7(/;!,!-'&41'!67/(.&4.'A(!.*(3'/,'.2*'
!11;*' ..!-' /6*15' ;*0!3'A&3'</6'&.'
20(!!'40'T@' *'&..&!4*1'.2*'&>*'/,'
$N?'A(!.!4>'./'.2*';&3.'&41'!3'3&!1'./'2&=*'
1!*1'/4'.2*'3.&>*'A!.2'.2*'-(/A4'/4'2!3'
2*&1' *'A&3'.2*'(*70.*1'&0.2/('/,'@CV'
3'/,'A2!-2'406*(/03'*0.(&-.3'&(*
3.!B'*0.&4.'32/A!4>'-/43!1*(&<;*'A!.'&41'
;>&4-*'/,';&4>0&>*' *'A&3'04-;*'./'
.2*'7/*.' *4&41*(
6*4.J(;!' 2*' &.!4'4&6*'10(!4>'
.2*'!67*(!&;'7*(!/1',/('-2!;1(*4'/,'4**15'
<0.',(**"</(4'7&(*4.3'A2/'/0.'/,'.2*'!4F
.*(*3.'/,'j0413'!4=*3.*1',/('.2*'70(7/3*'
(*-*!=*1'6/4.2;5'-/4.(!<0.!/43'./'.2*!('307F
7/(.'!4'>//13'/('6/4*5'07'./'&'-*(.&!4'&>*'
8,!O*1'!4'.2*'-&3*'/,'</53'&.'*!>2.**4'!4'.2&.'
/,'>!(;3'&.',/0(.**49' 2!3'3-2*6*'.2*'/<K*-.'
/,'A2!-2'A&3'./'*4-/0(&>*'7*/7;*'./'6&((5'
&41'3/'./'-2*-D'.2*'&;&(6!4>'1*-(*&3*'/,'.2*'
,(**'7/70;&.!/4'A&3'3.&(.*1'<5'.2*' 67*(/('
*(=&'. 3'T?"TR9'&41'*0.*41*1'<5' (&K&4'
./'.2*'A2/;*'/,'.&;5' 0--**1!4>'*67*(/(3'
&;3/'1/A4'./' ;*0&41*(' *=*(03'8@@@"@ V9'
,/041*1'30-2'<0(3&(!*3"&41'7(!=&.*'-!.!Q*43'
!4' .&;5'&41'.2*'7(/=!4-*3'&3',/('!43.&4-*

.2*' 5/04>*(' ;!45' =!*1' A!.2' .2*6' !4' .2*!(' ;!<*(&;!.5
;/J1!*' /(' ' /43' /,' /3*!1<4' <5' 72 6 1*!&' .2*' A!,*' /,' ;/*03' 3/4' /,' &4 -*' 83**' . ' $9' &41' /3*!1/4'" .2*!(' 4&6*3' A*(*' 9 (' &41' ' 2*5' >(*A' *=*(5' 5*&(' &4' *:;' !4' <(*&1.2' &41' &' ,&.2/6'!4';*4>.2'3/'.2&.'!4'4!4*' 5*&(3'.!6*' .2*5' A*(*' .2!(.5"3!0' ,**.' <(/&1'&41' ,!,.5"' ,/0(' ,**.' 2!>2' 2*!(' 3.(*4>.2' A&3' 30-2' .2&.' .2*5' -2&!4*1'07' .2*' >/1' (*3'&41'D*7.' 2!6' !4' &' <(&Q*4' -&3D' ,/(' .2!(.**4' 6/4.J' .!:;' .2*!(' 3.*76/.2*(' (!</,*&'<*.(&5*1' 2!3' A2*(*&</0.3' ./' *(6 3' A2/' -&6*' <5' 3.*&;.2' &41' 1(&>>*1' 2!3' 1!3&<;*1' <(/.2*(' /0.' /,' 10(&4-*' 2*5'.2(*&.*4*1' ./' 3./(6' 2*&=*4' !.3*:,' <5' 7!;!4>' 33&' /4' ;56703' &41' *;!<4' /4' 33&' &41'A/0;1' 2&=*' 1/4*' !.' 3&53' /6*(' 2&!4/.' 7/;;/' 3;&!4'.2*6' A!.2' 2!3' &((/A3' *(*' .2*!(' <*&(13' A*(*' >(/A4' 2*' ;&.*(';*>*41' (*7(*3*4.3' 72!&;.*3' &3' !4' ;/=*' A!.2' *(&' &41' .03' A!.2' (.<6!3' 4/.2*(' 65.2'(*7(*3*4.3' (.*6!3' &3' 3;&5!4>' .2*6' <5' -(&,.' !4' .2*' !3;&41' /,' &0/3' 2*' (043' <*.A**4' .2*6' !4' .2*' ,/(6' /,' &' 2!41' .2*5' 2.!(;' .2*!('37*&(3'&41'A/041'*&-2'/.2*(' ,&.&;;5' 4' .2*' ;&.*(' ;*>*41' .2*5' *07!&.*' .2*!('3!43'!4'.2*' ;/A*(" /(;1'<5'<*!4>' </041' A!.2' 34&D*3' ./' &' 7!;;&(' <&-D' ./' <&-D' A2!;*' .2*5' &(*' !4-*33&4.;5' ./(6*4.*1' /5' .2*' 3-(**-2!4>' /,' &4' /A;' 4' .2*' /.2*(' 2&41' .2*5' A*(*' A/(32!77*1' &3' 2*(/*3' !4' &0/3' &41' !4' .2*' /*/.!&4' 3-(&' A*(*' (*>&(1*1' &3' ,/041*(3' /,' .2*' -!.5' &41' /,' .2*' A/(32!7' /,' .2*' 03*3' /4' /04.' ; -/4
;17*' &0>2.*(' /,' *(-BB/4' /,' ;*03!3' &41' <5' /3*!1/4' 6/.2*(' /,' !77/.2<<4' & ' &,.*(' A2/3*' <!(.2' 2*(' ,&.2*(' A&3' >/!4>'./' D!;;' 2*(' <0.' .2*' >/1' -2&4>*1' 2*(' !4./' &' ,/04.&!4
;72*43' ' ! #&
;72<3!</*&' 8/(' " ' &0>2.*(' /,' 2*>*03' &41' ,!(3.' A!,*' /,' !-63*/4' A2/6' .2/0>2' 04,&!.2,0;' 32*' -/4.!40*1' ./' ;/=*' G&41' A&3' &4>(5' A!.2' 2*(*</(/.2*(3',/('D!;;!4>' 2!6' *(' </(/.2*(3' 320.' 2*(' 07' !4' &' </0' &41' </0>2.' 2*(' ./' >&7<4/(" D!4>' /,' >*&' 7(*.*41!4>' .2&.' 32*' 2&1' D!;;*1' 2*(' 203<&41' *(*' 32*' -&6*' <5' 2*(' *41' 2&=!4>' -/67&33*1' 2*(' <(/.2*(3' 1*&.2' <5' .2*' 2&41' /,' ;-6&*/4 3' 3/43
;.&(' !"!>!4&;;5' &' 3!67;*' *;*=&.!/4' &</=*' .2*' >(/041' 6&1*' /,' *&(.2' ,!*;1" 3./4*3' /(' .0(," &41' 30-2' &;.&(3' -/4.!40*1' ./' <*'03*1'!4'.2*'-/!6.(5'7&(.3'/,' .&;5' 0.' &;.&(3',/(' -/43.&4.'03*' *37*-!&;;5'!4'.*67;*' 3*(=!-*' A*(*' &3' &(0;*' /,' 3./4*' .2/0>2' !4' *0-*7.!/4&;' -&3*3' .2*5'!4!>2.' <*' 6&1*' /,' /.2*(' 6&.*(!&;3' 203' 3*=*(&;' !4' (**-*' A*(*' <0!;.' /0.' /,' .2*' &32*3' 7,' <06."/,!,*(' !4>3' &3' .2&.' /,' L*03' &.' ;5 67!&' 4*' &.' *;/3' A&3' 6&1*' /,' >/&.3' 2/(43' .,2*!(' 32&7*' A&3' =*(5'=&(!/03' .2*' ,/0("-/(4*(*1' <*!4>'.2*'-/6 6/4*3.'
&41' .2*' (/041' ;*33' 030&;' ' .*67;*' 030&;;5' 2&1' .A/' &;.&(3ll .2*' /4*' 03*1' ,/(' <;//1;*33' /,,*(F !4>3' 3.&41!4>' <*,/(*' .2*' 1*!.5 3' !6&>*' !4' .2*' N ' &41' .2*' /.2*(',/('<0(4."/,,*(F !4>3' /77/3!.*' .2*' 1//(' !4',(/4.' /,' .2*' .*67;*' 2*' ;&..*(' A&3' >*4*(&;;5' &' 2!>2' 8 *(;!4' 03*469 &;.&(' 3.&41!4>' /4' & 7;&.,/(6'A2!-2' !3' -0.' !4./' 3.*73' *!4>' &4' !4.*>(&;' 7&(.'/,' .2*' A2/;*' 3*.' /,' <0!;1!4>3' !.3' 32&7*' &41' 3!Q*' A*(*' (*>0;&.*1' <5' .2*!(' 7(/7/(.!/43' /6*' ,*A' /,' .2*3*' 2!>2' &;.&(3' A*(*' /,' *4/(6/03' 1!6*43!/43*' .2*' /4*' &.' ;567!&' 2&1' &' 7;&.,/(6' 6*&30(!4>' 6/(*' .2&4' $@V' ,**.'(/041' A2!;*' .2*' &;.&(' !.3*;,' A2!-2' A&3' &3-*41*1' <5' 3.*73' A&3' 4*&(;5' @V' ,**.' 2!>2' 4' .&;5' &3' A*;;' &3' (**-*' <*3!1*' .2*' &;.&(3' &..&-2*1' ./' .*67;*3' .2*(*' A&3' &' =&3.' 406<*(' !4' 3.(**.3' &41' 3:0&(*3' !4' .2*' -/0(.3' /,' 2/03*3' 83**' -0.9' !4' /7*4' ,!*;13' !4' 3&-(*1' >(/=*3' &41' /.2*(' 7(*-!4-.3' -/43*-(&.*1' ./' .2*' >/13' /6*' &;.&(3' ;!D*' 3/6*.*67;*3' A*(*'1*1!-&.*1'./'6/(*'.2&4'/4*' 1*!.5" A*' *=*4'2*&(' /,' &;.&(3'1*1!-&.*1' ./' &;;' .2*' >/13' 4' &;.&(3' ./' 2*(/*3' ' $ # 23*&' &0>2.*(' /,' 2*3.!03' A!,*' /,' 8 4*03' D!4>' /,' &;*1/4' 6/.2*(' /,' 51*03' *;*J>*(' 8: 0 9' &41' *!&4*!(& ;.!3' 2*' 3&-(*1' >(/=*' 4*&(' ;567!&' ' !4' A2!-2' .2*' ;567!-' &6*3' A*(*' -*;*<(&.*1' # ' 0.) & (6&;.2*&' 8 (' (' ,!>0(*' !4' (**D' 65.2/;/>5' 2*' 4&6*' A&3' 3/6*.!6*3' &77;!*1'./'&!1 ' A2!-2' 30-D;*1' .2*' 4*A</(4' L*03' !4' (*.*' A2!;*' <**3'<(/0>2.'2!6'2/4*5' &41' A2!-2' A&3' .2*(*,/(*' 3*.'&6/4>' .2*' 3.&(3' <5' 2*(' 40(3;!4>" 3/6*.!6*3' ./' &' ": (' A2/' A&3' 3077/3*1' ./' 7/33*33' &' 6!(&-0;/03' 2/(4' &' 356</;' /,' 7;*4.5' &41' A2/3*' 1*3-*4.' A&3' =&(!/03;5' >!=*4' --/(1!4>' ./' /4*' =*(3!/4' 32*' !3' .2*' 1&0>2.*(' /,' .2*' (*.&4' D!4>' *;!33*03' &41' <(!4>3' 07' .2*' !4,&4.' >/1' /4' .2*' 6!;D' /,' &' >/&.' A2!;*' 2*(' 3!3.*(' *;!33&' &' <**9' /,,*(&' 6 6' 2/4*5' 2*' 2/(4' /,' .2*' >/&.' !3' >!=*4' ./' 2*(' <5' L*03' A!.2' .2*' 7(/6!3*' .2&.' 32*' 32&;;' &;A&53' ,!41' !4' !.' A2&.*=*(' 32*' "A!32*3' (/6' 2*(' .2*' -/(40-/7!&' 7&33*1' !4./' .2*' 7/33*33!/4' /,Y

d.2*' (!=*("'>/1' -2*; ..3' A2/' A&3' >;&1' ./'
0-2&4>' !.' ,/(' 2!3' /A4' 2/(4' A2!-2'
*(&-;*3' 2&1' <(/D*4' /,,' .' !3' &;3/' &4'
&..(!<0.*' /,' !/4B3,!3' /,' ;0.43' &41' /.2*('
>/13' /,' *&(.2;5',*;!-!.5
6&Q/43'8 (' 6 " *O P'<(*&3.;*33I9
' '65.2!-&;' 4&.!/4'/,'A/6*4"A&((!/(3'A2/3*'
"2*&1:0&(.*(3' &(*' 7;&-*1' <5' *&(;5' (**D'
;*>*41' !4' 2*6!3-5(&' /4' .2*' 2*(6/1/4'
%/4' .2*' 3/0.2*(4' 32/(*' /,' .2*' 00!4*' 4'
;&.*(' &--/04.3' .2*5' &;3/' &77*&(' /4' .2*
G &0-&303' &41' /4' .2*' /4' A2*(*' .2*'
4&.!/4'-&;;*1' &0(6 .3*' A&3' 3077/3*1'./'
2&=*' 37(04>' ,(/6' .2*!(' 04!/4' A!.2' .2*'
% -5.2!&43' 2*5' 30,,*(*1' 4/' 6*4' &6/4>'
.2*6' .2*' 3/43' </6' /,' .2*!(' !4.*(-/0(3*'
A!.2'4*!>2</0(!4>'4&.!/43'.2*5'*!.2*('D!;;*1'
%/(3*4.'<&-D'./' .2*!(',&.2*(3' .2*'>!(;3'.2*5'
2(/0>2.' 07' ./' <*'
A&((!/(3' <0(4!4>'
.2*' (!>2.'<(*&3./,,'
,/(' .2*' <*..*('
2&41;!4>' /,' .2*'
</A' 2*!(' -2!*,'
%1*!.!*3' A*(*' 3&!1
./'<*' (*3'&41'.2*'
' &0(!&4' (.*6!3
=*4' !4' /6*('
.2*5' &(*' (*7(*'
3*0.*1' &3' 6&D!4>'
;/4>' 6&(-2*3' !4./'
' 3!&.!-' .*((!./(5'
&4' &(65' /,' .2*6'
!4=&1!4>' 5-!&' !3'
G-0.' ./' 7!*-*3' <5'
*;; (/72/4' '
(!&6' .2*4' !4' 2!3'
5/0.2' 2&3.*43' ./'
2*;7'.2*' 2(5>!&43'
&>&!43.' .2*6
' 2*5'>&!4*1'&',!(6'
,//.!4>' !4' (**D
G3/4>' &41' 3./(5'
.2(/0>2' (-.!403
G',' !;*.03' !4
A2/3*' 7/*6' .2*!('
G:0**4' *4.2*'
3!;*!&' 1&0>2.*(' /,' GH \\Xa' 8 9' ( )'
(*3' &3' (!&63' 8 *(;!4' 03*069
&;;5'7(*33*3' 2&(1' /4' .2*' (**D3'.!;;' 32*'
!3' 3;&!4' <5' -2! *3' ,.*(' .2&.' .2*5' <*F
-&6*' &',&=/0(!.*' 30<*-.' A!.2' 7/*.3' &41'
&(.!3.3' &41' &' 4*A'-(/7'/,',&<;*' 37(&4>'07\
*(-;*3' A&(3' &>&!43.' .2*6' ./' A!4' .2*'
>!(1;*' /,' .2*!(' :03*4' !77 ;5.*' 2*3*03'
-&((!*3' /,,' 2*(' 3!3.*(' 4.!<7*' .2*5' !4'
(*= 4>*' <0(3.' !4./' ..!-&' *4-&67' /4' .2*'
(*/7&>03' /,' .2*43' &41' &(*' 7&-!,!*1' <5'
;4.!/7*3' 6*1!&.!/4' /(' &--/(1!4>' ./' &4F
/.2*(' =*(3!/4' <*&.*4' !4' &' >(*&.' <&..;*'
(&=*"6/0413'3077/3*1'./' -/=*(' .2*' </4*3'
/,' 6&Q/43'A*(*' 32/A4'4/&(' *>; &'&41'
!4' 0</*&' 6!1' 2*33&;5' 4' A/(D3'/,'&(.'
.2*' 6&Q/43'A*(*' (*7(*3*4.*1'&3'6&(.!&;'
6&!13'.2/0>2' &;A&53' !.2' .A/' <(*&3.3'
&41' 030&;;5' /4' 2/(3*<&-D" 3/6*.!6*3' !4'
-5.2!&4'1(*33',&' .!>2.',;!(' .04!-' A!.2' &'
-;/&D' /,' 6&45',/;13' /=*(' !.' &41' &' D!41'
/,' 2(5>!&4'-&79' 3/6*.!6*3' !4' (*-!&4'8&'
/(!&4'.04!-'.0-D*1'07'&41'.2*'(!>2.'32/0;F
1*(' <&(*9'&(6*1'A!.2'&' 2&;,"6//&' 32!*;1'
.A/"*1>*1'&0*'37*&(' </A'&41' :0!=*(' *.-'
2*' 6/3.',&6/03' 3.&.0*3' /,' .2*6' !4' &4F
.!:0!.5'A*(*' .2/3*' <5' 2,1!& !' /;5-;!.03'
&41' (*3;;&3'./' /4*' /(' /.2*(' /,' A2!-2'&3'
.57*3' *0!3.!4>' 37*-!6*43' &(*' .(&-*&<;*'
& '-0.9 6/4>'.2*'30(=!=!4>'3-0;7.0(*3'
(*7(*3*4.!4>'&4' 6&Q/4!&4'-/4.*3.'32/0;1'
<*' *37*-!&;;5' 6*4.!/4*1'.2*' (*;!*,3',(/6'
.2*' ,(!*Q*' /,' 7/;;/3'.*67;*' &.' &33&*' !4'
(-&1!&'8!4'.2*' (!.!32' 03*06' /41/49
6<&(=&;!&' 2*' .&;!&4',*3.!=&;'/,'<;*33F
!4>'.2*',!*;13'A2!-2'A&3'D*7.'&.' /6*' /4'
&5'@T.2' 2*' -/04.(5'7*/7;*' A&;D*1'!4'
3/;*64'7(/-*33!/4'.2(**'..4!*3'(/041'.2*!('
,!*;13'!4'.2*' A&D*' /,' .2*' " 2 Q 2! '
!*'&'2/>' (&6'&41'<0;;'A2!-2'A*(*' 3&-(!F
,!-*1'&,.*(' &' 7(&5*(' /(!>!4&;;5' &11(*33*1'
./' &(3'&,.*(A&(13'030&;;5'./' (*3'&41'
/.2*('1*!.!*3'/,'&>(!-0;.0(*'.2&.'.2*',(0!.3'
/,' .2*' ,!*;13' 6!>2.'.2(!=*'' $ ' 2& '
$ #
6<!.03'8;!.' &' >/!4>' (/041'9' 6*&4.'&.'
/6*' .2*' -&41!&.0(*' ,/(' &' 70<;!-' /,,!-*'
<*-&03*'>/!4>'(/041'&6/4>'.2*'-!.!Q*43'A&3'
/(!>!4&;;5' .2*' 7(!4-!7&;' 6*&43'/,' A!44!4>'
.2*!(',&=/0(' 2*4'04;&A,0;' 6*&43'<*>&4'
./' <*' 03*1'&41'<(!<*(5'!4'"*=*(5',/(6'A&3'
/(>&4!Q*1'!4./'&'353.*6'.2*' /(1'-&6*'./'
6*&4'/<.&!4!4>'/,'/,,!-*'<5'!;;*>&;'6*&43'
/' -2*-D' .2*' >(/A!4>' *=!;' ;&A3'A*(*'
7&33*1'&.'&4'*&(;5'7*(!/1'&41',(/6'.!6*'
./' .!6*' 6&1*' 6/(*' 3*=*(*' 2*' 7*4&;.!*3'
A2!-2'(&4>*1'&.'1!,,*(*4.'.!6*3',(/6',!4*3'
&41'!4&16!33!<!;!.5'./' /,,;/*' ./'<&4!326*4.'
,(' .*4'5*&(3'&41' *=*4',/(' ;!,*' 7(/10-*1'
4/';&3.!4>'*,,*-.' .' ;&3.'&'37*-!&;'3.&41F
!4>'-(!6!4&;' -/0(.' &3' *3.&<;!32*1',/('
.(5!4>'30-2' -&3&3'.!;;'041*(' .2*' 67!(*
(*-/0(3*' A&3' 2&1' ./&' (&1!-&;' -2&4>*' !4'
.2*' 6/1*'/,'*;*-.!/4
6<(13!&' 45.2!4>' .2&.' -/4,*(3' /('
7(*3*(=*3'!66/(.&;!.5'8 9'.2*',//1'/,'.2*'
>/13'8&3'4*-.&('A&3'.2*!('1(!4D9'A2!-2'
1/=*3'&--/(1!4>'./' /6*('<(!4>'1&!;5'./'
L*03',(/6'.2*',&('A*3.'8!9'.2*'&4/!4.!4>'/!;'
/,'.2*'>/13'A2!-2'7(*3*(=*3'*=*4'1*&1'6*4'
,(/6'1*-&5'8 9'.2*',//1'/,'.2*'>/13'2/(3*3

6<0(<!.!6 ' <*' &.!4' 4&6*' ,/(' &' 3/;*64' 7(/-*33!/4' /,' .2*' 7*/7;*' A!.2' .2*' =&(!/03' /(1*(3' /,' 7(!*3.2//1' ;*1' <5' .2*' 7/4.!,*0' .2(**' .!6*3' (/041' .2*' </041&(!*3' /,' /6*' .' A&3' /4;5' (*3/(.*1' ./' &.' &' .!6*' /,' >(*&.' 1!3.(*33' &41' .2*' &4!6&;3' 1*3.!4*1' ./' 6&D*' &./4*6*4.' ' &' 2/>' &' (&6' &41' &' <0;;'8.2*' 3/' -&;;*1' ! ' 3**' '& 2& &(' A*(*' 3&-(!,!-*1' !#*"' 37*-!&;'7(&5*(3' /0.3!1*' .2*' -!.5

6*!73!&3' ' (**D' 7/*./,' .2*' /;1' -/6*15' -/4.*67/(&(5' A!.2' (!3. 72&4*3' A2/6' 2*' .A!-*' /=*(-&6*' ,' 2!3' 7;&53' /4;5' 3;!>2.',(&>6*4.3'(*6&!4

6 6!&403' &(-*;;!403' 2*';&3.' /6&4' 2!3./(!&4'/,'&45'!67/(.&4-*'</(4'&.' 4./-2' !4' K4(!&'&</0.' N' :' /,' 4/<;*' (*-!&4' 1*3-*4.' ,.*(' (*-*!=!4>' &' -&(*,0;' *10-&F .!/4'2*' *&(;5'*4.*(*1' 6!;!.&(5'3*(=!-*'&41' ,/0>2.'041*(' 0;!&4' &>&!43.' .2*' ;*6&44!' &41' *(3!&43' 4' .2*' *=*4!4>' /,' 2!3' 1&53' 2*' (*.!(*1' ./' /6*' &41' &</0.' TN' <*>&4' 2!3' &.!4' 2!3./(5' /,' .2*' *67*(/(3'#7 @ ' 6 ' ; ' ,(/6' *(=&' ' T?' ./' .2*' 1*&.2' /,' &;*43' !4' .2!(.5"/4*' </!D3' ' ,' .2*3*' .2*(*' /4;5'(*6&!4'</!D3'0!= "000!' !4-;01!4>' .<*' 7*(!/1',(/6' V ' ./' UR' ' A2!-2' 2*' (*;&.*3' ,/(' .2*' 6/3.' 7&(.' &3' &4' *5*"A!.4*33' 3'2!3'A/(D'6&5'<*' (*>&(1*1' &3' &' -/4.!40&.!/4' /,' &-!.03' 2*' 3**63' /4' .2*' A2/;*' ./' 2&=*' .&D*4' .2&.' (!.*(' ,/(' 2!3' 6/1*;' ' *' (*3*6<;*3' &-!.03' !4' K01>F 6*4.' 7/;!.!-&;'&-0.*4*33' &41';/=*' /,' .(0.2' ' 2*&.2*4'2!63*;,' 2*' !3' 4*=*(.2*;*33',&!(' ./' .2*' 2(!3.!&43' 0.' 2*' !3',&(' !4,*(!/(' !4';!.*(&(5'-0;.0(*' .2/0>2'2/';/=*3' ./"!13F 7;&5'2!3'D4/A;*1>*' *37*-!&;;5'!4'1*3-(!<!4>' 4&.!/43'&41'-/04.(!*3' &.!4'A&3'&',/(*!>4' ;&4>0&>*' ./' 2!6' 2*4-*' &' -(01*4*33' &41' -;063!4*33' /,' *07(*33!/4' A2!-2' !3' 6&1*' *=*4' 6/(*' (*7*;;*4.' <5' &,,*-.&.!/4' </6F <&3.' &41'<*A!;1*(!4>'/(4&6*4.&;'!6&>*(5 6 6/4'8/(' "'*' >57.!&4' "' .2*' 2!11*4' /(' =*!;*1' /4*9' ' >/1' 4&.!=*' ./' !<5&' &41' 77*(' >57.' *' A&3'(*F 7(*3*4.*1'3/6*.!6*3'!4'.2*'32&7*'/,'&'(&6' A!.2'*4/(6/03'-0(=!4>'2/(43'3/6*.!6*3'!4' .2&.'/,'&'(&6"2*&1*1'6&4'3/6*.!6*3'&3'&' 7*(,*-.'6&4'3.&41!4>'07'/('3!..!4>'/4'&' .2(/4*' 4'2!3'2*&1'A&3'.2*' (/5&;'*6F <;*63'A!.2'.A/'2!>2',*&.2*(3'3.&41!4>'07' .2*'356</;3','3/=*(*!>4.5'/=*('.2*'077*(' &41'041*('A/(;13'!4'2!3'2&413'A*(*'.2*' 3-*7.(*'&41'.2*'3!>4'/,';!,*' 4'A/(D3',' &(.'2!3',!>0(*'!3'-/;/0(*1'<;0*' *3!1*'2!6' 3.&413'.2*' >/11*33' (' 8.2*'H 6/.2*(!' .2*'H:0**4'/,'1&(D4*33!'&3'.2*'!43-(!7.!/43' -&;;'2*(9'A*&(!4>'.2*'-(/A4'/,' 77*(' >57.' /(' .2*' =0;.0(*"3D!4' 83**' -0.9' !3' -2!*, .*67;*' A!.2' &' ,&,",&6*1' /(&-;*' 3.//1' !4' &2' /&3!3' /,' .2*' !<5&4'1*3*(.' .A*;=*'1&53' K/0(4*5' ,(/6' *6 72!3' *.A**4' .2!3' /(&-;*' &41' .2&.' /,' L*03'&.' /1/4&' &' -/4F 4*0!/4'!3'3&!1' ./' 2&=*' *0!3.*1' ,(/6'=*(5' &4-!*4.' .!6*3' 3/' .2&.' .2*' (**D3' *&(;5' !1*4.!,!*1'.2*' >57.!&4'>/1'A!.2'.2*!(' /A4' L*03'&3' .2*' /6&43'1!1' &,.*(A&(13'A!.2' .2*!(' 07!.*(" &41' 2!3' A/(32!7' ,/041' &4' *4.(&4-*' &.' 3*=*(&;' 7;&-*3' !4' (**-*' &.' 7&(.&' 2*<*3' &41' &;3/' .2*43' A2*4-*' ,*3.&;' *6<&33!*3' A*(*' (*>0;&(;5'3*4.' ./' .2*' !<5&4' 3&4-.0&(5' >%&&' $ &(' 2*4' .2*' /(&-;*' A&3' -/430;.*1' <5' =!3!./(3' .2*' >/1 3' 3 (6</;' 6&1*' /,' *6*(&;1' &41' /.2*(' 3./4*3' A&3' -&((!*1' (/041' <5' A/6*4' &41' >!(;3' ./' .2*' 3/041' /,' 2564 3' /4' &' >/;1*4' 32!7'204>' (/041' A!.2'=/.!=*' -073' /,' 3!;=*(' !3' (*7;!*3' A*(*' >!=*4' !4' .(*60;/03'32/-D3' -/6604!-&.*1' ./' .2*' <*&(*(3' A2!-2' A*(*' !4.*(7(*.*1' <5' &' 7(!*3.

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6/(' "&' 7)' (' $ 6&' ' $#

67>;!03'&;' ' /6&4' A(!.*(' 4/.' *&(;!*(' .2&4' .2*' @41' -*4.0(5' ' *' A&3' .2*' &0.2/(' /,' &' 4/.*</!D' ; ' R ' A2!-2' -/4.&!43' &' 3-&4.5' -/;;*-.!/4' /,' &3.(/4/6!-&;' >*/>(&72!-&;' &41' 2!3./(!-&;' K/..!4>3' &;.(5' &3' .2*' </!D' !3' &' 3.&.*F 6*4.' !4' !.3' -2&7.*(' /4' .2*' /41*(3' /,' .2*' A/(;1' 2&3' 6&!4;5';*1' ./' .2*' 1!3-/=*(5'8!4' $RURO' /,' .2*' 6&>4!,!-*4.' 3-0;7.0(*3' /,' *(" > 606'4/A'&.' *(;!4

672;!(&!!3'/,' (>/3'.2*' 3/4' /,' !-;`3' &41' 57*(64*3.(&' >(*&.">(&413/4' /,' .2*' 3**(' &6703' 4' /6*(2*!3'&',&=!0(!.*' /,' L*03' &41' 7/;;/' &;!D*' 1!3.!4>0!32*1' &3' &' 3**(' &41' &' 2*(/' A2/' .&D*3' 7&(.' !4' .2*' &;51/4!&4' </&("204.' !4' .2*' =/5&>*' /,' .2*B

(>/4&0.3 &41 .2* *07*1!.!)4 /, .2* *=*4 &>&!43. 2*<*3 *-/4-!;*1 ./ 1(&3.03 &,.*(& :0&((*; &41 A*11*1 ./ 2!3 3!3.*((!72 B; 2* &>(**3 .2&. &45 ,0.0(* 1!,,*(F *4-*3 <*.A**4 .2*6 32&;,<* 3*..;*1 <5 2*(2* <(!<*1 <5 /;54*!- 3 A!.2 .2* ,&.&; 4*-D;&-* /, 2!3 &4-*3.(*33 &(6<4!& !43!3.3 /4 2*(203<&41 K/!4!4> .2* A&(&>&!43. 2*<*3 .2/0>2 2* ,/(*3**3 .2&. !.5 A!;,*41 ,&.&;,5 ,/(2!6 &41 !4 1*7&(.!4> -2&(>*3 2!3 5/0.2,0; 3/43 ;-6&*/4 &41 6 B!" ;/-203 8: 0 ./ &=*4>* 2!3 -/6!4>5 1*&.2 !3 A!3* A&(4!4>3 &(* 042**1*1 <5 .2* /.2*(7(!4-*3 2!3 K03.!-* &41 7(01*4-* *=*4 <(!4> 2!6 !4./ /7*4 3.(!,* A!.2 .2* 3&=&>* 51*03# 5*.!4 .2* ,&.&,-;/3!4>5 -/4F .*3. 2* ;/5&;;5 &=*4>*3 2!3 1*&.2 /4 .2* 2*<&4 *;&4!7703 4 .2* ,;!>2. K03. &3 .2* 37*&(/, *(!-;56 403 !3 1*3-*41!4> /4 2!6 L*03 !4.*(7/3*1 ./ 3&=* .2* 7!/03 7(/72*. &41 6&D* 2!6 !66/(&.; <5 -;*&=F !4> .2* *&(.2 /7*4 A!.2 2!3 .2041*(</;. &41 <!11!4> !. 3A&;;/A 07 672!&(&03 G./>*.2*(A!.2 2!3 .(03.5 -2&(!/.**(&.<4 ;!D* 2!63*;, & 1*3-*41&4. /, *;&6703 (/6 .2&. .!6 *, /(.2 672!&(&03 A&3 A/(F 32!77*1 !4 =&(!/03 7;&-*3 &3 &4 /(&-0;&(>/1 *37*-!&;;5 &. (<703 /4 .2* ,(/4.!*(/, ..!-& &41 /*/.!& A2*(* 2* 2&1 & .*67;* &41 & ,&6/03 /(&-;* ,/(.2* !4.*(F 7(*.&.!/4 /, 1(*&63 &41 A2*(* >&6*3 A*(* -*;*<(&.*1 !4 2/4/0(/, 2!6 672!1(16!& . .2*43 &, ,&6!;5 ,*3F .!=&; &. A2!-2 4*A</(4 !4,&4.3 (*-*!=*1 (*;!>!/03 -/43*-(&.!/4) (672!-.5/43 8 ((: " ! 2!3 (**D A/(1 6*&4. ;!.*(&;;5 H 1A*;;*(3 &(/041 !<0. !4 & 37*-!&; 3*43* A&3 &77;!*1 ./ 7/70;&.!/43 A2!-2 &. 3.&.*1 .!6*3 6*. &. .2* 3&6* 3&4-.0&(5 ./ D**7 & ,*3.!=&; !4 -/66/4 &41 ./ .(&43&-. -/66/4 <03!4*33 2* 6/3. ,&6/03 &41 *0.*43!=* 04!/4 /, .2* D!41 A&3 .2&. -&;;*1 - " .2* (: " ; 1 A2/3* -/66/4 3&4-.0&(!*3 A*(* .2* .*67;* /, 5.2!&4 7/;;/ &. *;72! &41 .2* .*67;* /, *6 .*(8 <(*39 &. 4.2*;& 4*&(B;3* /(2*(6<" 75;3* ,.*(5;3* .2* &33*6<;5 A&3 4&6*1 .2* , : " *=*4 A2*4 !. 6*. &. *;72! &41 .2* 1*70.!*3 /, .2* ;*&>0* : 1S 2*;*&>0* A&3 3077/3*1 ./ <* =*(5 &4-!*4. &3 /;1 *=*4 &3 .2* 4&6* /, *;;*4*3 ,/(!.3 ,/041*(A&3 3&!1 ./ <* (: "! .2* 3/4 /, *0-J;!/4 &41 <(/.2*(/, *;;,!4 .2* -/66/4 &4-*3./(/,&;; *;;*4*3 .!4-;01*1 .A*;=* 7/70;&.!/43 &;!&43 2.2!&03 ;4!&4<3 /(8 ./*&43 <;<7<3 &>4*.!&43 *((2/*<!&43 2*33&;!&43 /-(!&43 /(!&43 2/-!&43 /*/.!&43 &41 ;/4!&43 ./>*.2*(A!.2 .2* -/;/4!*3 /, *&-2 2/0>2 !4 ;&.*(.!6*3 .2*!(*0.*4. &41 7/A*(A*(* =*(5 04*:0&;5*. !4 7/!4./, ;&A .2*5 &;; 2&1 *:0&; (!>2.3 *3!1* 7(/.*-.!4> &41 7(*F 3*(=!4> .2/3* .A/ 3&4-.0&(!*3 &41 -*;*F <(&.!4>, (/6 .2* 5*&(VR? /4A&(13 .2* 5.2!&4 &6*3 .2* ;*&>0* A&3 </041 ./ 6&!4.&!4 -*(.&!4 7(!4-!7;*3 /, !4.*(4&.!/4&; (!>2. A2!-2 /,(<&1* .2*6 , /(!43.&4-* *=*(./ 1*3.(/5 0..*(;5 &45 -!.5 /, .2* ;*&>0* /(./ -0. /, ,!.3 A&.* *=*4 !4 .!6* /, A&(/ .2* &33*6<;!*3 A2!-2 6*. *=*(5 37(!4> &41 B&0.064 *&-2 4&.!/4 3*4. .A/ " 8_ A&(1*43 /, 2/;5 .2!4>39 &41 3*=*(&; : 1 2* ;&..*(.//D 7&(. !4 .2* 1*<&.*3 <0. G/4;5 .2* ,/(6*(2&1 .2* (!>2. /, =/.!4> 2*4 & 4&.!/4 !4-;01*1 3*=*(&; 3.&.*3 .2*3* .//D <5 .0(43 .2* 7(!=!;*>* /, 3*41!4> 1*70.!*3 0. .2* 3.(/4>*(3.&.*3 3 -2 &3 .2* /4!&4 .2*43 /(.2* /(!&4 7&(.&A*(* 7(/<&<;5 &;;/A*1 ./ .&D* .2*!(.0(4 /,.*4*(.2&4 .2* (*3. /(*=*4 ./ 3*41 ./ *=*(5 &33*6<;5 2*4 =!/;&.!/43 /, .2* 3&4-.0&(!*3 /(/, 7/70;&((!>2. .//D 7;&-* .2* &33*6<;5 -/0;1 !4,;!-. ,!4*3 /(*=*4 *070;3!/4" &41 &3.&.* .2&. /0;1 4/.30<6!. ./ .2* 704!32F 6*4. 2&1 & H 2/;5 & < 1*-;&(*1 &>&!43. !. 5 30-2 & A&(.2* 2 *!&43 A*(* *OF 7*;;*1 C? &41 .2*!(./ =/.*3 >!=*4 ./ .2* &-*1/4!&43" <0. .2* *070;3!/4 /, .2* ,/(6*(A&3 A!.21(&A4 <*-&03* /, .2* >;/(!/03 7&(. .2*5 .//D !4 1*,*41!4> .2* *;72!&4 .*67;* A2*4 .2(*&.*4*1 <5 .2* &0;3 !4 @UT &41 &. .2* 3&6* .!6* .2* ./;!&4 -/66 04!.5 A2!-2 2&1 &;(*&15 6&1* !.3*;, 6&3.*(/, .2* 3&4-.0&(5 A&3 &-D4/A;*1>*1 &3 & 4*A 6*4-<*(/, .2* ;*&>0* 4 T -.2* 406<*(/,6*6<*(3" &6/04.*1 ./ *=*4.**4 A2/ 4*=*(.2*;*33" 2&1 /4;5 .A*4.5",/0("=/.*3 3*=*4 2&=!4>5 .A/ =/.*3 *&-2 .2* (*3. /4;5 /4* 41*(.2* /6&4 (0;* .2* ;*&>0* -/4.!40*1 ./ *0!3." <0. !.3 &-.!/4 A&3 4/A ;!6!.*1 ./ .2* -&(* /, .2* *;72!&4 .*67;* .A&3 (*F /(>&4!Q*1 <5 0>03.03 A2/ !4-/(7/(&.*1 .2* &;!&43 &>4*.!&43 B4!&4*3 &41 5.2!&43 A!.2 .2* 2*33&;!&43 &41 30<F 3.!.0.*1 ,/(.2* *0.!4-. /;/7*3 .2* -!.5 /, !-<7<;!3 !4 -&6&4!& A2!-2 2* 2&1 ,/041*1 &,.*(.2* <&..;* /, -.!06 2* ;&. 4/.!-* A*, !41 /, .2* ;*&>0* !3 !4 .2* @41 -*4.0(5 672;;1/243 /4 /, 672!&(&03 &41 (!725;* ;-63*/4 3 <(/.2*(* A&3 & 3**(&41 &--/(1!4> ./ 3/6* .//D 7&(. !4 .2* A&(/, .2* 7!> 4! &41 .2* 60(1*(/, 2!3 6/.2*(* A&3 3&!1 ./ 2&=* ,/041*1 .2* 672!;/-2!&4 (>/3 84*&(*/D2/(!9 !4

4 &672!.2*&.(* A&3 030&;;5 &4 /=&; <0!;1!4> 30((/041!4> &4 " / ; ;!D* 32&7* A2!-2 3/6*.!6*3 &3 &. /6* &41 &70& A&3 & 7;&4D ,;//((*3.!4> /4 1**7 041*(>(/041 A&;;3 .2* 37&-*3 041*(4*&.2 -/4.&!4!4>* -&>*3 &41 6&-2!4*(5 ,/(.(&43F ,/(6&.!/43 2* *0.*(!/(A&3 ,/(6*1 /, 3*=*(&; &(-&1*3 /4* &</=* .2* /.2*(.2* ;/A*3.* /4* &16!..!4>* ./ &-/((!1/(A2!-2 (&4(/041 .2* <0!;1!4> &41 /0. /, A2!-2 3.&!(-&3*3 ;*1 07 ./ .2* =&(!/03 (/A3 /, 3*&.3 4 .2* /;/33*06 .2!3 ,!(3.&(-&1* !3 &1/(4*1 A!.2 /(!- .2* 3*-/41 A!.2 /4!- .2* .2!(1 A!.2 /(!4.2!&4 H*4>&>*1 I -/;0643 .2* ,/0(.2 !3 & A&;; 1*-/(&.*1

8$9 ^ 8 O.*6&;**;*=&.!/49

(/041 7;&4 !4 ,/0(:0&(.*.3
!(13 *5* =!*A /,3*&.3 (!3!4> !4 .!*(3 ./ 2!>2*3. 7&(. /, *0.*(4&; !4-;/30(*
;&4 ,2!>2*3.3./(*5 *07/3*1 <5 (*6 /=&; /, 2!>2*3. .!*(3 / 3*&.3
N ;&4 /, !4.*(6*1!&.* 3./(*5 *07/3*1 <5 (*6 /=&; /, 2!>2*3.&41 !4.*(6*1!&.* .!*(3
(0* >(/041 7;&4 /(7;&4 /, ;/A*3.3./(*5

A!.2 /(!4.2!&4 7!;&3.*(3 &41 7!*(-*1 A!.2 A!41/A3 #
6 6*1!&.*;5 (/041 .2* &(*4& (&4 & 2!>2 6&33!=* A&;; A!.2 =&0;.3 ,/(.2* &4!6&;3 &41 ,/(/.2*(70(7/3*3 4 !.; (*3.*1 .2* 7(!K.*-.*1 <5 !.3 2*!>2. &41 <5 37*-!&; -/4.(!=&4-*3 ,(/6 .2* A!;1 <*&3.3 A2*4 ;!>2.!4>* 2*(* A*(* .2* 3*&.3 /, 2/4/0(1 &. /6* .2/3* /, .2* !67*(!&, &6!;5 .2* /, -*(3 /, 3.&.** &41 .2* *3.&; !(>!43 </=* .2* (/3* .2* 3*&.3 /, /.2*(37*-.&./(3 !4 -/4-*4.(!- (/A3 .2* ;/A*3. /4*3 <*!4>, /(3*4&./(3 &41 6&>!3F .(&.*3 .2* 4*0. ,/(D4!>2.3 &41 .2* (*3. ,/(-!.!Q*43 /6*4 3&. !4 .2* 2!>2*3. 7&(. /, .2* <0!;1!4> 041*(&-/;/44&1* 7&(.3 /, A2!-2 A*(* 7/(.!/4*1 /, , /(.2* -/66/4 7*/7;** 2* A2/;* 37&-* , /(3*&.3 -/0;1 <* 32*;.*(*1 ,(/6 304 &41 (&!4 <5 &4 &A4!4>3077/(.*1 /4 6&3.3 A2!-2 A*(* ;*. !4./ -/(<*;3 /, 3./4* .2&. K0..*1 /0. /, .2* 077*(-!(-06 ,*(*4-* 2* &(*4& -/0;1 &;3/ <* ;&!1 041*(A&.*(, /(.2* *02!<!.!/4 /, 3*&",!>2.3 .2* 3/"-&;;*1 " "
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67 .(;.* 1&0>2.*(/, *(*43 &41 /(!3 !3 .2* A!,* / ,/ 3*!1/4 &41 :0**4 / , .2* 3*&/ 3*!1/4 3&A 2*(1&4-!4> A!.2 .2* *(*!13 /4 .2* !3;&41 /, &0/3 &41 -&((!*1 2*(/,, --/(1!4> ./ &4/.2*(&-F -/04. 32* ,;*1 ,(/6 2!6 ./ .;&3 A2*4 .2* >/13 1/;72!4 37!*1 2*(/0. &41 <(/0>2. 2*(./ 2!6 4 /6*(32* !3 4/. 5*. -&;;*1 /3*!1/4 3 A!,* <*0. &3*&">/11*33 A2/ <*&.3 .2* <!;;/A3 &>&!43. .2* (/-D3 &41 2&3 .2* -(*&.0(*3 /, .2* 1**7 !4 2*(D**7F !4> *(3/4 !3 .2* 3*&">/1 (!./4 2* 2&1 4/ 3*7&(&.* A/(32!7 2* !3 /,.*4 (*7(*3*4.*1 A!.2 &4*. -/4,!4!4> 2*(2&!(A!.2 -(&<3 -;&A3 /4 .2* -(/A4 /, 2*(2*&1 <*!4> -&((!*1 <5 (!./43 /(<5 1/;72!43 &41 /.2*(6&(!4* &4!6&;3 /(1(&A4 <5 H2*6 !4 &-2&(!/. /, 32*;;3 3 .2* /6&43 !1*4.!,!*1 /3*!1/4 A!.2 .2*!(*7.04* 3 .2*5 1!1 672!.(!.* A!.2 &;&-!& &>/1F 1*33 /, .2* 3&;. A&=*3

672;.(K,/4 /4 /, ;-&*03 >(&413/4 /, *(3*03 &41 D!4> /, !(543 !3 ,&.2*(3 <(/.2*(;*D.(B/4 D!4> /, 5-*4&* 2&1 /--&3!/4 ./ >/ /0. /4 & A&(/, =*4>*&4-*" &>&!43. .*(*; ,!3 D!4> /, .2* &72!43 &41 *;*</&43 !4 -&!4&4!& &41 .2* 4*!>2</0(F !4> !3;*3 A2/3* 3/43 2&1 -&((!*1 /, , 2!3" -&..;* &41 2&=* 3;&!4 2!3 /A4 3/43 &;;<0. 5/04> !-564!03 *;*,. 672!.(5/4 !4 -2&(>* /, 2!3 D!4>1/6 &41 <*.(/.2*1 .* 2!6 2!3 1&0>2.*(;-6*4* 4 2!3 (*.0(4 672!.(5/4 D!;;*1 2!6 !4 :0&((*; /(<5 &--!1*4. &41 1(!=*4 &A&5 <5 &4/.2*(04-;* .2 4*;03 ,;*1 A!.2 2!3 <*.(/.2*1 &41 2*(<(/.2*(!-564!03 ./ (*/4 D!4> /, 2*<*3 &< (/.2*(/, 2!3 6/.2*(!77" 4 6* A2/ 70(>*1 2!6 /, <;//1">0!;. &41 7(/6!3*1 !, 2* A/0;1 ,!(3. D!;;* .2* 0" 6*33!&4 ,/0 ./ 2*;7 2!6 &>&!43. .*(*;&03' ,/(;-6*4* A/0;1 4/. A*1 2!6 .!;; 2*(<(*.2(*4 A*(* &=*4>*1 &=!4> (*41*(*1 .2* ,/0 2&(6;*33 A!.2 .2* 2*;7 /, *72,.;03 & 2* 6&(-2*1 &--/67&4!*1 <5 (*/4 *72&;03 &41 /.2*(2*(/*3 &>&!43. .2*

d.2*3*' ;&5' 6!4>;*1' A!.2/0.' /(1*(' <0.' .2*' G1!=!4*' 37!(!.' ['3!67;*' 70(*' 7&33!/4;*33' (*&3/4' ['3*.' .2*' 04&((&4>*1' 6&..*(' !4./' 6/.!/4' &41' .2*(*<5'-(*&.*1' /0.' /,' -2&/3' &4' %/(1*(;5' A/(;1' 2!3' 6/=*6*4.' 7(/-**1F !4>',(/6' .2*' -*4.(*' A/(D3' /4',/(' *=*(' G7*4*.(&.!4>',&(.2*(' &41',&(.2*(' .2*' !4,!4!.*' G6&33' 0.' .2*' &77;!-&.!/4' /,' .2*' 37!(!.0&;' 7(!4-!7;*' A&3' (&.2*(' !41!-&.*1' .2&4' ,0;;5' -&((!*1' /0.' <5' 4&0&>/(&3" 2*' 2!63*;' XK/66/4;5' *07;&!43' 72*4/6*4&' <5'7253!-&;' G-&03*3' &41' /4;5' A2*4' 2*' -&44/.' ,!41' .2*3*' ,&;;3' <&-D' /4' .2*' &-.!/4' /,' 1!=!4*' (*&3/4 4&0&41(;1*3' ' (**D' 7/*./,' .2*' !11;*' /6*15' &' 2/1!&4' 4/0(!32*1' !4' % U? □ ' *' !3' 3.&.*1' ./' 2&=*' <**4' .2*' ,!(3.' A2/' 6&1*' ;/=*' &,,&!(3' .2*' 30<K*-.' /,' -/6*15' !3' 7;&53' A*(*' -2&(&-.*(!Q*1' <5' <(!>2.4*33' &41' 206/0('<0.' /4;5',(&>6*4.3' %/,' .2*6' &(*' 7(*3*(=*1 4&0!6&41*(' 8 (' 2 " ' ' (**D' 72!;/3/72*(' /,' !;*.03" </(4' ?$$" &' 5/04>*(' -/4.*67/(&(5'/,' 2&;*3' &41' 2*(*" -51*3' *';!=*1'&.' .2*' -/0(.'/,' /;5-(&.*3' %/,' &6/3' &41' 1!*1' (' VCU' 4' 2!3' 72!;/F 3/725' .2*' 7(!6&;' *33*4-*' A2!-2' 2*' A&3' .2*' ",!(3.' ./' -&;;' 7(!4-!7;*' A&3' .2*' !66/(.&;" !67*(!32&<;*' &;;"!4-;01!4>' !4,!4!.*' &' D!41' %/,' -2&/3' /0.' /,' A2!-2' &;;' .2!4>3' 7(/-**1' G&41' !4./' A2!-2' .2*5' (*.0(4' *' -/67/3*1' !4' .2*' /4!-' 1!&;*-.' &' <(!*,' &41' 3/6*A2&.' 7/*.!-&;'.(*&.!3*' /4' 2!3' 1/-.(!4*' A2!-2' 6&5' <*' (*>&(1*1' &3' .2*' *&(;!*3.' 7(/3*' A/(D' /4' 72!;/3/725" <0.' /4;5' &' ,*A' 3*4.*4-*3' /0.' %/,' !.' &(*' 7(*3*(=*1' 2*' &1=&4-*3' 2*' 2&1' 6&1*' !4' 7253!-3' &41' &3.(/4/65' &(*' *=!" %1*4-*1' <5' 2!3' !4=*4.!/4' /,' .2*' 304"1!&;' 2!3' -/43.(0-.!/4' /,' &' -*;*3.!&;' >;/<*' &41' 2!3' ,!(3.' &..*67.' &.' &' >*/>(&72!-&;' 6&7 4&0!6*4*3' 8$9' ' (**D' 72!;/3/72*(' /,' !;*.03' &' 5/04>*(' -/4.*67/(&(5'&41' 707!;' %/,' 4&0!6&41*(' A2/' 1!*1' &</0.' VN@' ' *' 3077/3*1' ' ./' <*' .2*' ,041&6*4.&;' 7(!4-!7;*' /0.' /,' A2!-2' *=*(5.2!4>' &(/3*' <5' (&(*,&-.!/4' &41' -/41*43&.!/4' 2!3' 1/-.(!4*' 2*' *07/041*1' !4' &' A/(D' 4/A' ;/3.' A(!..*4' !4' .2*' /4!&4' 1!&;*-. 8@9' ' (**D' 3/72!3.' /,' &673 -03' ,&=/0(!.*' /,' 2!;!7' /,' &-"1"4' &41' ;*OF &41*(' .2*' ;(*&.' *' -/67/3*1' /(&.!/43' &41' 2!3./(!-&;' "A/(D3' 3/6*' .(*&.!4>' /,' .2*' &-F .!/43' /,' .2/3*' .A/' 7(!4-*3' ,' .2*3*' <0.' ;!..;*' (*6&!43' 4' .2*' /.2*(' 2&41' 2*' !3' .2*' &0.2/(' /,' .2*' 7(- " ' .2*' *&(;!*3.' *0.&4.'A/(D' /,' .2!3' D!41' A2!-2' A&3' /4-*' !4-;01*1' &6/4>' .2*' A/(D3' /,' (!3./.;* 4-' 3*3' /4' /,' &753' /,' .2*' (/5&;' 0/03*' /,' (/5' <5' </.2' 7&(*4.3' (0;*(' /, &(1J403' /4' /04.' 1&' 72(/1!.*' ;/=*1' 2!6',/(' 2!3' <*&0.5' &41' </(*' 2!6' &' 3/4' B4*&3' 0.' 2&=!4>' !4' 37!.*' /,' 2*(' A&(4F !4>3' </&3.*1' /,' 2*(' ,&=/0(' 2*' !3' 8&--/(1!4>' ./' =&(!/03' =*(3!/43' /,' .2*' 3./(59' 7&(&;53*1' D!;;*1' /(' 3.(0-D' <;!41' <5' .2*' ;!>2.4!4>' /,' L*03' *(>!;' (*7(*3*4.3' .2*' 1!3&<;*1' -2!*,' &3' </(4*' /0.' /,' <0(4!4>' (/5' /4' 2!3' 3/4 3' 32/0;1*(3' &41' &3' 32&(!4>' 2!3' A&41*(!4>3' /=*(' .2*' 3*&' &41' &!1!4>' 2!6' A!.2' 2!3' -/043*;' .!;;' .2*5' (*&-2' (*7J406' !4' !-!;5' A2*(*' 2*' 1!*3' &41' !3' <0(!*1' /4' /04.' (50 4-!; ' 2*' 36&;' /=&;' 3&-(*1' 32!*;1' -0(=*1' !4A&(13' /4' *!.2*(' 3!1*' A2!-2' A&3' 3&!1' ./' 2&=*' ,&;;*4',(/6' 2*&=*4' !4' .2*' (*!>4' /,' 06&' 2*(*' <*!4>' &' 7(/72*-5' .2&.' .2*' 3.&<!;!.5' /,' /6*' A&3' </041' 07' A!.2' !.' 06&' 2&1' *;*=*4' /.2*(3' 6&1*' *0&-.;5';!D*' !.' <5' &' -044!4>' A/(D6&4' ' = 2' 3/.2&.' .2*' (!>2.' /4*' 32/0;1' 4/.' <*' 3./;*4' 2*' -&(*' /,' .2*3*' &(63' A2!-2' A*(*' 3&-(*1' ./' &(3' A&3' *4.(03.*1' ./' .2* ^ ' ' ' ' ' ' ?] ' ' ^ 'G </=*_D' (^ '&4-!;*"<*;/A3B ^ '-2*'/A4*(3'4&6*' *6'!&' ;/(*4-*9 &;!!' 'A2/' 2&1' ./' -&((5'.2*6' .2(/0>2' .2*' -!.5' /4-*' &' 5*&(' A!.2' 7*-0;!&(' -*(*F 6/4!*3' .' .2*' -/4-;03!/4' /,' .2*!(' 3/4>3' &60(!03' 2!63*;' A&3' !4=/D*1' &41' /4' &(-2' $C.2' .2*5' 2*;1' &' 37*-!&;' ,*&3.' .2*' &.' A2!-2' .2*5' 3&-(!,!-*1' ./' 2!6' <*&.!4>' /4' &' 2!1*' A!.2' 3.&=*3' 7(/<F &<;5' ./' !6!.&.*' &' 36!.23' 2&66*(!4>' .' &!3' ;!D*;5' .2&.' .2*' 4&6*' &60(!03' -/4-*&;3' .2&.' /,' .2*' >/1' &(3'8/(' &6*(39'2!63*;, 4-5(&406' /406*4.06' 2*' 6/40F 6*4.' /,' 4-5(&'84/A' 4>/(&9' &' 6&(<;*' 3;&<' /,' A2!-2' .2*' >(*&.*(' 7&(.' !3' 7(*F 3*(=*1' .' <*;/4>*1' ./' .2*' .*67;*' /,' 0>03.03' &.' 4-5(&'&41' -/4.&!4*1' .2*' &.!4' .*0.' /,' &' (**D' .(&43;&.!/4' /,' .2*' (*7/(.' 1(&dA4' 07' <5' .2&.' *67*(/(' 2!63*;,' /4' .2*' &-.!/43' /,' 2!3',*!>4' #'" -' 7 ' ' 6 ' 5'.2*' .*(63' /,' 2!3' A!;;' .2!3' (*7/(.' *4>(&=*1' !4' <(/4Q*' A&3' 3*.

07 !4 ,(/4./ / 3 6&03/;*06 &. /6* &41 -/7!*3 A*(6&1 / !. /(/.2*(.*67;*3 / 0>03.03 !4 .2 7(/=!4-*3
41J<&.3* 8 &" & $ #
411-!1*3 2 3*-/41 !4 /(1*(/ .!6 * !4 .2 (/;;/ ..!- /(&./(3 A&3 </6 40 C T &41 <*;/4>*1 <5 <!(.2 ./ .2 &(!3./-(&.!- 7&(.5 <0. ,*;; /0. A!.2 !. !4 C$V A2*4 2 A&3 !4=/;=*1 !4 .2 ,&6/03 .(!&; ,/(60.!;&.!4> .2 3.&.0*3 / *(6*3 &41 ./ 3&=* 2!3 /A4 &41 2!3 D!436*4 3 ;!=*3 <*.(&5*1 2!3 &(!3./-(&.!- &--/67;!-*3 &=!4> !4 37!. / .2 !6 604!.5 7(/6!3*1 2!6 ,&;;*4 !4./ 7&(.!&; 8;/33 / -!=!- (!>2.39 2 ;*,. .2*43 &41 -&((!*1 /4 &7(/,!.&<;* .(&1* !4 57(03 ,.*(.A/ ,(0!.;*33 &..*67.3./ (*-/=*(2!3 3.&.03 &. 2/6* 2 A&3 &;;/A*1 &. ;&3.07/4 .2 ,&;;/, .2 2!(.5&41 .2 &64*3.5 / 4 CN ./ (*.0(4./ .2*43 A2*(2 0-F -**1*1 !4 (*7*;;!4> (*4*A*1 &..&-D3 &41 &!4!4> &4 2/4/0(&<;* 7/3!./4 *4./ 7&(.& !4 4 TN 10! !4> .2 /(!4.2!&4 &(./ 4*>/.!&.* 7*&-* 2 <(/0>2.<&-D .2 1(&,./ / & .(*&.5 ,/(.2 (&.!,!-&.!/4 / A2!-2 2 =&!4;5 7;*&1*1 !4 & 37**-2 .2&. !3 3.!;; *0.&4. * !3 3&!1 ./ 2&=* <**4 <&4!32*1 !4 -/43*:0*4-* & 41 ./ 2&=* 1!*1 !4 *0!;* *3!1* .2 &</=*"F 6*4.!/4*1 /(&.!/4 A 2&=* .A/ 1*;!=*(*1 /4 2!3 /A4 <*2&;, /4 7;*&1!4> ,/(2!3 (*-&;, ,(/6 <&4!326*4. 4 C$N &4/.2*(&>&!43. .2 -2&(>* / ! 6;&A,0; 7&(.!-!7&.!/4 !4 .2 653.*(!*3 RTT &,/0(.2 1 " !3 370(!/03 !3 /(&./(5!3 7;&!4 &41 &(.;*33 &41 !.3 *07(*33!/43 .2/3* / .2 7/70;&(;&4F >0&>* / .2 1&5
41(1>*/3 /4 / !4/3 D!4> / (*.* <5 &3!72& !3!.!4> .2*43 &. .2 ,!(3. -*;*<(&.!/4 / .2 &4&" .2*43*& 2 A/4 =!-./(!*3 /=*(&;; .2 -2&67!/43 A2*4 D!4> K >*03 /0. / K*&;/035 3*4. 2!6 ./ ,!>2. .2 <0;; / &(&.2/4 A2!-2 D!;;*1 2!6 --/(1F !4> ./ &4/.2*(&--/04. 2 A&3 3;&!4 !4 &4 &6<032 !4/3 &=*4>*3 213 3/4 <5 6&D!4> .2 .2*4!&43 3*41 3*=*4 5/0.23 &41 3*=*4 6&!1*43 *=*(5 4!4 5*&(3 &3 =!-.!63 ./ 2!3 !4/.&0(,(/6 A2!-2 2*3*03 &. ;&3.1*;!=*(3 .2*6 04*(&; >&6*3 A*(2*;1 !4 .2 *(&6!-03 &. .2*43 !4 2/4/0(/ 41(7>*03 041*(.2 4&6* / 0(5>B*3
41(/6D-2* 2 1&0>2.*(/ .!/4 D!4> / .2 !;!-!&4 2*<*3 !3 /4 / .2 4/<;*3. ,*6&; -2&(&-.*(3 !4 /6*(1!3F .!4>0!32*1 &;!D <5 2*(!;;",/(.04 &41 2*(.(0 &41 .*41*(;/= ,/(2*(203<&41 *-F ./(-2!;;*3 !4 .&D!4> 2*(4&.!=* ./A4 D!;;3 2B(,&.2*(&41 3*=*4 <(/.2*(3 2*(6/.2*((*1** 6*1 ,(/6 -&7.!=!.5 !3 -&((!*1 / ,<5 3!-D4*33 2*(203<&41 ,&;;3 <5 .2*" 2&41 / -2!;;*3 &41 A2*4 (/5 !3 .&D*4 32* 3**3 2*(/4* </5 3.5 4&0 8/(-&6&4" 1*(9 20(;*1 ,(/6 .2* A&;;3 2* ,&;;3 &3" .2* 7(!Q* /, A&(./ */7. ;*603 .2* 3/4 /, 2*(>(*&.*3. ,/* A2/ ,!(3. &((!*3 2*(./ 7!(03 .2*4 30((*41*(3 2*(./ *-./(3 <(/.2*(*; 4..3 ,.*(2!3 1*&.2 32* (* .0(43 ./ 3!& A!.2 *(> 603 2*(3/4 <5 */7./;*603 &41 1!*3 .2*(*
41(16 1& &0>2.*(/ .2* .2!/7!&4

D!4> *72*03 8& 3/4 / *;039 <5 &33!/7*!& &33!/7*!& 2&1 </&3.*1 / <*!4>,&!(*(.2&4 .2* *(*!13 &41 /3*!1/4 ./ 704!32 .2* 7(/,&4!.5 3*4. & ,;//1 &41 & 3*&"6/43.*(3 .2* /(&-;* / 6 6/4 7(/6!3*1 & (!1F 1&4-* / .2* 7;&>0* 32/0;1 41(/6*1& <* .2(/A4 ./ .2* 6/43.*(*72*03 A&3 -/6F 7*;;*1 ./ -2&!4 2!3 1&0>2.*(./ & (/-D /4 .2* 32/(* . 3 6/6*4. / ,1!3.(*33 *(F 3*03 &77*&(3 &41 (*3-0*3 2*(2*(,&.2*(2&=!4>7(/6!3*1 2*(./ 2!6 !4 6&((!&>* .2* A*11!4> & =!/;*4. :0&((*;& (!3*3 <*.A**4 .2* D!4>3 <(/.2*(4*03 ./"

&41' A&3' .2*(*,.(*' (*>&(1*1' &3' &' >/11*33' A2/'<*3./A*1' ;/4>';!,*'&41'&;';.2&.'-/4.(!F <0.*3'./'!.'''</0.',0;';'6//4'/4'.2*'1*3' .8,!,.**4.29'/,' &(-2'8.2*4'.2*',!(3.'6/4.2'/,' .2*'5*&(9'!4'&'>(/=*'/,',(0!.'.(**3'&.'.2*',!(3.' 6!;*3./4*'/4'.2*' ;&6!4!&4' &5'.2*' /6&43' 2*;1' &' 6*((5',*&3.'041*(' .2*'/7*4'3D5' A!32!4>'*&-2'/.2*(' &3' 6&45' 5*&(3'/,';!,*' &3' .2*5'1(&4D'-073'/,'A!4*' 2*';*&(4*1' 6*4'/,'.2*' 0>03.&4'&>*' !1*4.!,!*1' 44&' A!.2' !1/3'3!3.*('A2/'/4'.2*1*&.2'/,'.2&.' :0**4'2&1',;*1',(/6' &(.2&>*'./' 4*&3' !4' .&;5'<0.'2&=!4>'*0-!.*1' &=!4!&3' K*&;/035'.2(*A'2*(3*;,'!4./'.2*' 06!-!03' &41'<*-&6*'.2*'45672'/,'.2&.'(!=*(4414&' ' &.!4'A/(1'6*&4!4>'.2*' 5*&(3'7(/10-*'*37*-!&;;5'!4'A2*2.'.2*' 3.&7;*',//1'/,'.2*' -!.5'7/70;&.!/4"!.'A&3' &,.*(A&(13'&77;!*1'./'.2*'-/(4'7(/=!1*1'<5' .2*' .&.*' ./' ,**1' .2&.'7/70;&.!/4' 3' .&;!&4' &>(!-0;.0(*'1*-&5*1'&41'.2*' -!.5' 7/70;&.!/4'3.*&1!;5'!4-(*&3*1'.2*' :0*3.!/4' /,'!.3' 6&!4.*4&4-*'<*-&6*'&'-/43.&4.'-&(*' ./'.2*' .&.*'A2!-2'/4'.2*'-/4:0*3.'/,'.2*' ,!(3.'.A/'7(/=!4-*3' !-!;5'&41' &(1!4!&'&.' /4-*'1//6*1'.2*6'*37*-!&;;5'.2*',/(6*(' ./'.2*'.&3D'/,'=!-.0&;;!4>'.2*'&(6!*3'&41' ,**1!4>' /6*'<5'!67/3!4>'&'.!.2*'/4'-/(4' &41',/(<!11!4>'!.3'*07/(.&.!/4'./'&45'-/04.(5' <0.'.&;5' 2*'.*4.2'7&!1'&3'.(!<0.*'&41' .2*(' -/(4</0>2.'07'<5'.2*' .&.*'A&3'3/;1' <5'.2*'3*1!;*3'&.'&' 6/1*(&.*'7(!-*'030&;;5' /4' .*(63' A2!-2'7(*=*4.*1' .2*' .(*&30(5' <*!4>'&' ;/3*(' 203' .!;;' .2*'.!6*'/,'.2*' (&--2!' .2*' ' "" " ' A&3' -/4,!4*1'./' .2*' 6&!4.*4&4-*'/,'&' 6/1*(&.*'7(!-*'<0.' .2*' -/6';&A'/,' &!03' (&--203' ' ' $@' ;&!1'/4'.2*' .&.*'.2*'/<;!>&.!/4'./'1*;!=*(' ./'&45' /6&4'2/03*2/;1*(' /4'1*6&41' "K' <032*;3'/,'A2*&.'&'6/4.2'&.'&',!O 1'7(!-*' A2!-2'*=*4'!4'-2*&7'.!6*3'A&3';*33'.2&4'2&;,' .2*' -/3.'7(!-*'&41' ;/1!03'!4'4 'VR'A*4.' ,.!(.2*(' &41' 6&1*' .2*' 1*;!=*(5' *4.!(*;5' (&.0!./03' 5'.2*'5*&('4 0'C?'.2*'406<*(' /,' (*-!7!*4.3'2&1'(!3*4'./' @N NNN' &41'.2*' 5*&(;5'/0.;&5'./'&306'*:0!=&;*4./'E?VN NNN' &*3&('.2*4'(*10-*1'.2*'(*-!7!*4.3'./'$VN NNN' <0.'.2*!('406<*('>(*A'&>&!4'.!;' 0>03.03' -0.'!.'1/A4'./'! 'A2/3*'4&6*3'A*(*' !43-(!<*1'/4'&'<(/4Q*'.&<;*'&41'A2/'(*-*!=*1' .2*!('6/4.2;5'7/(.!/4'/4'7(*3*4.&.!/4'/,'&' .!-D*.' 2!3'&((&4>*6*4.'&3'&'A2/;*'(*F 6&!4*1'!4',/(-*'.!;;'&</0.'.2*'*41'/,'.2*' 67!(*'*0-*7.'.2&.'!4'.2*' (1'-*4.0(5' <(*&1'A&3'>!=*4'!43.*&1'/,'>(&!4' 41' 3!1*'<5'3!1*'A!.2'.2*3*'>(&.0!./03'1/;*3' >(&!4'-/0;1'&;A&53'<*'</0>2.',/('&'6/1*F (&.*'7(!-*'&.' 6&>&Q!4*3'.,!;;*1'A!.2'.2*' 3077;!*3'/,'.2*'7(/=!4-*3'*37*-!&;;5'>57. &41' ,(!-&' &41'A!.2'70(-2&3*3'6&1*'<5' .2*' .&.*' 2*'*07*43*3'/,'.2*' "" " ' ,*;;' 6&!4;5'/4'.2*'8!67*(!&;' .(*&30(5'<0.' 7&(.;5'/4'.2&.'/,'.2*'3*4&.*' (/6' 0>03F .03'.!6*'.2*' "" " ' ,/44*'/4*'/,' .2*' 2!>2*3.'!67*(!&;'/,1-*3'!.3'2/;1*(' .2*' "" " ' 2&=!4>'&' ;&(>*'3.&,;' 3-&..*(*1'/=*(' /6*' 0(1.2*'A2/;*'*67!(*' 2*' "" " ' ;!D*'3/' 6&45'/.2*(' .2!4>3' A&3'7*(3/4!,!*1'<5'.2*' /6&43'&41'<*-&6*' &'>/11*33'/,'.2*'!67/(.&.!/4'/,'-/(4'A2/3*' &..(!<0.*3'A*(*'&'<032*;' *&(3'/,'A2*&.'% &41'&'2/(4'/,'7;*4.5

4.&*03' /4'/,' /3*!114'&41' *'8.2*' *&(.29" &' 20>*' >!&4.'!4' !<5&'A2/'>(*A' 3.(/4>*(' *=*(5'.!6*'2*'./02B'2!3'6/.2*(' &(.2' *',/(-*1';;'3.(&4>*(3'./'A(*3.;*' !.2'2!6'&41'D!;;*1'.2*6'A2*4'-/4:0*(*1'.!;;' *(&-;*3'/4'2!3'K/0(4*5'./',*.-2'.2*'&77;*3' /,'.2*' *37"(;1"3';!,.*1'2!6'/,',.2*'>(/041' &41'2*;1'2!6'&;/,'.!;;'2*'2&1'D!;;*1'2!6' !3' ./6<'A&3'32/A4'4*&(' !4>!3'!4' &0(*.&4!& 4.3*' ' "' " ' A&3'&'.*67;*' !4'A2!-2'.2*'2&;;'&.'*!.2*(' *41'A&3',/(!4*1' <5'7(/;/4>&.!/43',/' .2*' 3!1*"A&;;3'8&.' " ' &41'&'(/A'/,'-/;0643'<*.A**4'.2*' .*(6!4&;' 7!;&3.*(3'/,'.2/3*' 7(/;/4>&.!/43' ') #',!>' 4.*!&'8/.2*(A!3*' (" ' !,*'/,' (/*.03'/,' !(543' <5'3;&41*(!4>' *;; " (72/4'# :'A2/'2&1'(*K*-.*1'2*(' /,.*(3' /,';/=*'32*'-&03*1'2*(' 203<&41'./'&..*67.' 2!3';!,* 4.*41(' (/K&4'/,'2!>2'(&4D'203<&41' ./' .2*4&3'7(!*3.*33' 2 &4V'.2*'3!3.*(' -, *-!!<&' 2*4' *4*;&!!3'&41' 1533*03' &,.*(' .2*' ;&41!4>'/,' .2*' (**D3'-&6*'&3' *4=/53'./' (/5'1*6&41!4>'.2*'30((*41*(' /,' *;*4'2*'(*-*!=*1'.2*6'2/37!.&<;5'7(/F .*-.*1'.2*6',(/6' &(!3'&41'.2*4'&3'&;A&53' &1=!3*1'7*&-*' *-&03*'/,';.2!3';*&4!4>'./'.2*' (**D3'!.'A&3'&;;*>*1'!4';&.*(' .!6*3'.2&.' 2*' <*.(&5*1'2!3'4&.!=*' -!.5'<5'/7*4!4>'!.3' >&.*3'./'.2*'*4*65*'!4'(*.0(4',/(' A2!-2'2!3' 2/03*'D4/A4'<5'.2*'7&4.2*(3'2!1*'204>'/0.' /,'!.'A&3'37&(*1'&41'2*'&41'2!3',(!*413' &;;/A*1'./'>/',(**' 4*'&--/04.'A&3'.2&.' 2*'3&!;*1'A!.2' *4*;&03'A&3'1(!=*4'/0.'/,' 2!3'-/0(3*'./' 5(*4*'&41'3*..;*1'.2*(*' A2*(*'2!3'1*3-*41&4.3'.2*' 4.*4 (!13*'A*(*' A/(32!77*1'&3'2*(/*3' 4/.2*('A2!-2'<*F -&6*'.2*'&--*7.*1'.(&1!.!/4' (*7(*3*4.*1' 2!6'&3';*&1!4>'.2*' "4".!' A2*4'1(!=*4' /0./,'&72;&>/4!&'<5'=(&5/,' 2(&-*'&41' ;;5(!&'./'.2*' 1!0&.!-'&41'.2*4-*'./'.2*' 6/0.2'/,'.2*' &103'8 /9'A2*(*'2*',/041*1' &.&=!06'8 &10&9'.2*'-!.5'/,'.2*' "4".! 4."("3' 2*' >/1' /,' (*:0!.*1' ;/=*' <(/.2*('/,' (V3

4.*3!>4&4!' ' &.!4' A/(1' 1*4/.!4>' /(!>!4&;;5' .2*' 3/;1!*(3' ,!>2.!4>' !4' ,(/4.' /,' .2*' 3.&41&(13' 10(!4>' &' <&..;*" &,.*(A&(13' &' 7!-D*1' </15' !4' *=*(5' ;*>!/4' ,(**' /,' <&>F >&>*' &41' !4.*41*1' ./' &1=&4-*' !4' ,(/4.' /,' .2*' ,!4*' /,' <&..;*' &41' 3*!Q*' !67/(.&4.' 7/!4.3' /(' ./' /7*4' .2*' <&..;*

4.*=/(.&' ' " ' &

4.2*3.*(!&' ' (&1%*' &.' *"& %' 2*;1' !4' " .'' (' # 3%.%' $ ' $* # &';<(

4.2/;/>5' 8_'>&(;&41' /,' ,!/A*(39' 2*' % (**D' A/(1' "(/ /1) ' 6*&43' &' -/;;*-.!/4' /,' 32/(.'*37*-!&;;5'*7!>(&66&.!-'7/*63'<5' =&(!/03' &0.2/(3" A*' 3.!' 7/33*33' /4*' 30-2' -/;;*-.!/4' 1&.!4>' ,(/6' &4.!:0!.5' /;;*-F .!/43' /,' !43-(!7.!/43' !4' =*(3*' 2&1' 6/(*' .2&4' /4-*' <**4' 3*.' /4' ,//.' !4' *&(;5'.!6*3' ,/(' &4.!F :0&(!&4' 70(7/3*3' 2*' ,!(3.'(*>0;&(' &4.2/F ;/>5' *4.!.;*1' ("/' 8_"A(*&.29' A&3' &..*67.*1'<5' 1 ' /,' 21 (&'!4'.2*' $3.' %-*4.0(5' (' *' !.' -/4.&!4*1' <*3!1*' 2!3' /A4' -/67/3!.!/43' 7/*63' &((&4>*1' &--/(1!4>' ./' .2*!(' !4!.!&;' ;*..*(3' <5' ,/(.5"3!0' -/4.*6F 7/(&(5' &41' /;1*(' &0.2/(3' !4-;01!4>' (-2!F ;/-203' ;-&*03'd &772/' 4&-(/4' !6/4F !1*3' *.-' ./>*.2*(' A!.2' &' 7(/;/>0*' 3.!;;' G*0.&4.' 2!3' -/;;*-.!/4' A&3'*4(!-2*1' &</0.' $NN' '<5', '/,' 2*33&;/4!-&'A!.2' 3*;*-.' *7!>(&63' <5' &</0.' .2!(.**4' ;&.*(' &0.2/(3' .2*(' -/;;*-.!/43' A*(*' 041*(F .&D*4' 3//4' &,..*(' <5' 5 1 " " '/,' *(&"' -;*!&' &41' "' /,' &(1!3' &41' !4' .2*' ".2' -*4.0(5' <5' 1 ('/,' 5(!4&' !4' GA2/3*' : .2*' 7/*63' &(*' ,/(' .2*' ,!(3.' .!6*' &((&4>*1' &--/(1!4>' ./' 30<(*-.3' 0.' /,' .2*3*' -/;;*-.!/43' 4/A' &;' ;/3.' $ " "2' " ' $ (' /,' /43.&4.!4/7;*' !4' .2*' .2' -*4.0(5' 70.' />*.2*(' &' 4*A' &41' -/6" 7(*2*43!=*' &4.2/;/>5' -;&33!,!*1' &--/(1!4>' ./' -/4.*4.3' !4' ,!,.**4' 3*-.!/43' (/6' .2!3' G-/;;*-.!/4' .2*' 6/4D' - ' , " ' !4' .2*' $C.2' -*4.0(5' 6&1*' &4' *0.(&-.' /,' 3*=*4' </!D3' A2!-2' A&3' .2*' /4;5' /4*' D4/A4' .!' .2*' 5*&(' $?N?' 4' .2&.' 5*&(' .2*' (*4-2' 3-2/;&(' &06&!3*' 8 &;6&3!039' 1!3F -/=*(*1' !4' .2*' &;&.!4*' !<(&(5' &.' *!1*;F <*(>' &' -/67;*.*' 6&403-(!7.' /,' .2*' &4.2/F ;/>5' /,' /43.&4.!403' *72&;&3' A!.2' 3041(5' &11!.!/43' 2!3' ' A!.2' &;;' .2*' ./2*(' .(*&30(*3' /,' .2*' ;!<(&(5' A&3' -&((!*1' /,' ./' /6*' !4' $?@ ' A2*4-*' !.' A&3' .&D*4' ./' &(!3' !4' $UT ' &41' <&-D' ./' *!1*;<*(>' !4' R?

2*' *7!>(&63' /,' .2*' (**D' &4.2/;/>5' d1&.!4>' &3' .2*5' 1/' ,(/6' "A!1*;5' 1!3.&4.' &>*3' G1/"A4' ./' .2*' 50&4.!4*' &41' <*!4>' .2*' 7 B' G10-.!/4' /,' 6/(*' .2&4' .2(**' 2041(*1' 1!,F ,*(*4.' &0.2/(3' &(*' /,' =*(5' =&(!/03' 6*(!."' <0.' 6&45' /,' .2*6' &(*' &6/4>' .2*' 7*&(;3' /,' % (**D' 7/*.(5' &41' -/0;1' 2&(1;5' 2&=*' 30(F =!=*1' 04;*33' *432(!4*1' !4' 30-2' &' -/;;*-.!/4' &D*4' ./>*.2*(' A!.2' .2*' (!-2' 3./(*' /,' *7!F >(&63' ,/041' !4' !43-(!7.!/43' .2*' 4.2/;/>5' /7*43' ./' 03' &' =!*A' /,' .2*' 1*=*;/76*4.' /,' .2!3' <(&4-2' /,' (**D' ;!.*(&.0(*' 30-2' &3' A*' -&4' 3-&(-*;5' /<.&!4' !4' .2*' -&3*' /,' &45' /.2*(' <*3!1*3' &,,/(1!4>' =&;0&<;*' !4,/(6&.!/4' /4' *;;*4!-' ;&4>0&>*' 2!3./(5' &41' 6&44*(3' &.' .2*' 6/3.' 1!,,*(*4.' 7*(!/13

7 "' ;!.*(&.0(*' 2&3' 4/' (*&;;5' &4-!*4.' -/;;*-.!/4' /,' 3/' -/67(*2*43!=*' &' -2&(&-.*(' .2*' 3/"-&;;*1' ; "' " (1:' 2&"=!4>' <**4' >&.2*(*1' <5' 6/1*6' 3-2/;&(3' /0.' /,' .2*' 6&.*(!&;' ,/041' 3-&..*(*1' !4' =&(!/03' 6/4>' .2*3*' !.' !3' .(&*' &06&!3*' 3' /,' .2*' U.2' -*4.0(5' 4/A' !4' &(!3' 2&3' &' -/;F ;*-.!/4' /,' &</0.' RN' 7/*63'<0.' .2*3*' A!.2' &' ,*A' *0-*7.!/43' &(*' /,' =*(5' ;&.*' &0.2/(F 32!7

4.!113!3'8_*0-2&4>*' /,' 7(/7*(.!*39' 4' &((&4>*6*4.' 7*-0;!&(' ./' .2*' .2*4!&43' <5' A2!-2' &' -!.!Q*4' 306/4*1' ./' 7*(,/(6' /4*' /,' .2/3*' 3*(=!-*3' ./' .2*' .&.*' 4&6*1' 2' 1 ' &' !,' 2*' .2/0>2.' &' (!-2*(' .2&4' 2*' 2&1' <**4' 7&33*1' /=*(' -/0;1' -2&;;*4>*' 2!6' ./' *0-2&4>*' 7/33*33!/43' <!41!4>' 2!6F 3*;,' !4' .2&.' -&3*' ./' 1!3-2&(>*' .2*' /<;!>&F .!/4' &-2' 7&(.5' -/0;1' .2*4' 2&=*' .2*' /.2*(3' 7(/7*(.5' 70.' !4' 3*:0*3.(&.!/4' &41' 2!3' 2/03*' 3*&;*1' 07'' &41' A!.2!4' .2(**' 1&53' .2*5' 2&41*1' !4' <*,/(*' .2*' 7(/7*(' &0.2/(!.5' &41' 041*(' /&.2' &4' !4=*4./(5' /,' .2*!(' >//13' ,' 4/' &6!-&<;*' &>(**6*4.' A&3' -/6*' ./' &41' .2*' K01>*' 3' 1*-!3!/4' A*4.' &>&!43.' .2*' 7;&!4F .!,,' 2*' A&3' <041' ./' 7*(,/(6' .2*' 70<;!-' 3*(=!-*' /.2*(A!3*' .2*' 1*,*41&4.' 30<6!..*1' *!.2*(' ./' .2*' *0-2&4>*' /(' ./' .2*' 3*(=!-*

4.;>14*' 8$9' &0>2.*(' /,' 8 1;723' &41' ;/-&3.&' A2/' &--/67&4!*1' 2*(' <;!41' ,&.2*(' !4./' *0!;*' ,.*(' 2!3' 1*&.2' !4' ..!-&' 32*' (*.0(43' ./' 2*<*3' &41' !4' 1*,!&4-*' /,' 2*(' 04-;*' (/43' 7(/2!<!.!/4' 7*(,/(63' .2*' ;&3.' 2/4/0(3' ./' 2*(' <(/.2*(' /;54*!-*3' ,&;;*4' !4' 3!4>;*' ,!>2.' A!.2' .*/-;*3' <5' 3.(*A!4>' 2!3' </15' A!.2' 103.' /(' .2!3' 32*' !3' *4./6<*1' &;!=*' !4' .2*' ,&6!;5' =&0;.' &41' .2*(*' 2&4>3' 2*(3*;,' &41' 2*(' <*.(/.2*1' 3*6/4' .2*' 3/4' /,' (*/4' 3.&<3' 2!63*;' <*3!1*' 2*(' -/(73*' 0-2' !3' .2*' =*(3!/4' /,' /72 -;*3' 4/.2*(' .(&!.!/4' (*7(*3*4.3' 4.!>/4*' &41' (>*!&' .2*' A!1/A' /,' /;54*!-*3' &3' 3*-(*.;5' <0(4F !4>' 2!3' </15' <5' 4!>2.' /4' .2*' ,04*(&;' 7!;*' /,' .*/-;*3' d B*4' 3*!Q*1' <5' .2*' >0&(13' (*/4' 2&413' 2*(' /=*(' .!' 3*6/4' /,' (*0*-0F .!/4' <0.' 2*' 2!1*3' 2*(' !4' &' 32*72*(1 3' 20.' &41' ;!=*3' A!.2' 2*(' !4' 3*-(*.' A*1;/-D' 2*!(' 3/4'>(/A4' 07' &41' *4>&>!4>' !4' 3/6*' ,04*(&;' >&6*3' &.' 2*<*3' !3' (*-/>4!3*1' <5' &' <!!".2'' 6&(D' 7*-0;!&(' ./' .2*' ,&6!;5' /' *3-&7*

S(*/43 =*4>*&4-* &*6/4 D!;;3 </.2 4.!F >/4* &41 2!63*;,

8@9 4.!>/4* 1&0>2.*(/, 0(5.;/4 &41 A!,* /, *;*03 # 2 2&4>*1 2*(3*;, /(>(!*, &. .2* 3077/3*1 !4,!1*;!.5 /, 2*(203<&41

4.!>14,!3 (**D A(!.*(/, &(53.03 &</0.@CN 4 &0.2/(/, &-/;;*-.!/4 /, &;; D!413 /, -0(!/3!.!*3 &41 ,!-.!/43 !4 4&.0(&; 2!3./(5 2* A/(D !3 4/A *0.&4. /4;5 !4 &6 0-2 &<<(*=!&.*1 ,/(6 &41 !3 /, 4/ =&;0* <0.,/(!.3 406*(/03 :0/.&.!/43 &41 ,(&>6*4.3 ,(/6 ;/3. A(!.!4>3

4.!>(72*03 "& 19& (1 (# 1 0#1$ ((#0&'' 1* *"& % 8 & & !#

4.!-;*!& &0>2.*(/, 0. ;5-03 A!,* /, &*(.*3 &41 6/.2*(/, 1533*03 &

4.,;,!-203 2* 3/4 /, *3./(A2/ &--/67&4!*1 2!3 ,&.2*(./ .2* (/K4 &(&41 A&3 1!3.!4>0!32*1 &6/4> .2* 5/04>*(2*(/*3 ,/(<*&0.5 &41 <(&=*(5 /6*(-&;;3 2!6 &,&=/0(!.* /, L*03 &41 /3*!1/4 2* 1*&(*3. ,!(!*41 /, -2!;;*3 4*0. ./ &.(/-;03 2* !3 -2/3*4 <5 .2* (**D3 ./ <(*&D .2* 4*A3 ./ 2!6 /, 2!3 <*;/=*1 -/6F 7&4!/43 ,&;; 2*4 *64/4 &..&-D3 .2* &>*1 *3./(4.!;/-203 .2(/A3 2!63*;, !4 2!3 A&5 &41 <053 2!3 ,&.2*(3 3&,*.5 A!.2 2!3 ;!,* *;!D* &.(/-;03 !3 &=*4>*1 <5 -2!;;*3 !4 A2/3* >(&=*"6/041 .2* &32*3 /, </.2 ,(!*413 &(* ;&!1 *=*4 !4 .2* ;/A*(A/(;1 1533*03 <*2/;13 .2* .2(** 7&-!4> .2* &372/1*;, 6*&1/A &41 !4 &,.*(.!6*3 .2* !42&<!.&4.3 /, ;!06 /,,*(*1 ./ .2*6 K/!4.;5 .2* 3&-(!,!-*3 10* ./ .2* 1*&1 /4 .2* ,/(*;&41 /, !>*06

4.;6!-203 (**D 7/*. &41 -(!.!- /, /; 72/4 &4 *;1*(-/4.*67/(&(5 /, ;&./ &</0. CNN -5 2!3 .A/ 7(!4-!F 7&; A/(D3 [.2* ;/4> 65.2!-&; -&;;*1 +(&41 &-5-;* /, 1 4&6*1 &,.*(2!3 ;/=*1 &41 ;/3. 51* &41 .*;;!4> /, ,&6/03 ;/=*(3 7&(.*1 <5 1*&.2 [2* <*-&6* .2* ,/041*(/, ;*&(4*1 7/*.(5 7(*-0(3/(&41 7(/./.57* /, .2* ;*0&41(!&43 A2/ /4 &--/04. /, 2!3 ;*&(4!4> &33!>4*1 2!6 .2* 4*0. 7;&-* ./ /6*(&6/4>3. *7!-5 7/*.3 4 3.(!=!4> ./ !67&(. 3.(*4>.2 &41 1!>4!.5 ./ ;&4B&>* <5 &=/!1!4> &;; .2&. A&3 -/6F 6/4 2!3 3.5;* <*-&6* (!>!1 &41 &(.!,!-!&; &41 4&.0(&;;5 (&4 !4./ </6<&3. 0. A* 7/33*33 /4;5 ,(&>6*4.3 /, 2!3 A/(D3 3 &3-2/;&(2* !3 (*6&(D&<;* /(2&=!4> 3*. /4 ,//. &-(!.!-&; (*=!3!/4 /, .2* /6*(!-7/*63

4.;41!!3 <*&0.!,0;5/0.2 /, ;&01!/ 7<;!3 !4 !.254!& &,&=/0(!.* &41 .(&=*;;!4> -/67&4!/4 /, .2* *67*(/(&1(!&4 * 1(/A4*1 2!63*;,' !4 .2* !;* 7(/<&<;5 (/6 6*;&4-2/;5 2* *67*((2/4/0(*1 2!3 6*6/(5<5 7;&-!4> 6 &6/4> .2* 2*(/*3 *(*-.!4> 3.&.0*3 &41 .*67;*3 &41 ,/041!4> 5*&(;5 >&6*3 !4 2!3 2/4/0(A2!;* .2* &(.!3.3 /, *=*(5 7(/=!4-* =!*1 !4 7/0.(.(&5 !4> 2!6 041*(=&(!/03 ,/(63 206&4 2*(/!- &41 1!=!4** 1 &3 K !/4B303 *(6*3 7/;;/ 6/4> .2* ,*&.0(*3 -/66/4 ./ .2* 6&45 30(=!=!4> 7/(.(&!.0(*3 /, 4 .!4/03 &(* .2* ,0;;* ;/-D3 ,&;;!4> ;/A 1/A4 .2* ,/(*2*&1 .2* ;&(>* 6*;&4-2/;5 *5*3 .2* ,0;;* 6/0.2 &41 .2* <(/&1 3A*;;!4> <(*&3. /6* /, .2*3* 7/(.(&!.3 &(* &6/4> .2* ,!4*3. A/(D3 /, *&4-!*4. &(. , /(!43.&4-* .2* -/;/33&;* 3.&.0* !4 .2* &.!*&4 &41 .2* 2&;,";*4>.2 (*;!*, &. .2* !;;&* ;<&4! # -0. 2*(* !3&;3/ &,!4* <03. !4 .2* /0=(*

& ' =)

8 ;/6*. !;;& ;<&4.9

4.,,!7* 8$9 4 /6*(& 1&0>2.*(/, .2* /*/.!&4 (!=*(">/1 3/703 6/.2*(<5" L*03 /, 6720/4 &41 L*.203 4 ;&.*(" ;*>*41 2*(,&.2*(!3 5-.*03 /, 5(!& /(" 53!3* 3 2* .2(*&.*43 ./ 704!32 2*(,/(5!*;1!4> ./ .2* &77(/&-2*3 /, L*03 041*(.2* ,/(6 /, & 3&.5(32* ,;**3 ./ 7/7*03 /, !-5 4 2!3 D!4> 2*(04-;* 5-03 D!;;3 <5 /(1*(/, 2!3 <(/.2*(5-.*03 4/A 1*&1 &41 ;*&13 2*(<&-D !4 -2&!43 (F (!=*1 /4 /04. !.23*(24 32* >!=*3 <!(.2 ./ .A!43 672!/4<5 L*03 L*.203 <5 7/7*03 A2/6 5-03 ;*&=*3 *07/3*1 07/4 .2* 6/04F .&!4 ,.*(<*!4> ;/>! 6 7(!3/4*1 &41 !;;" .(*&.*1 <5 !(-* .2* A!,* /, 5-03 32* *3-&7*3 ./ !.23*(/4 &41 6 &D*3 &-:0&!4.&4-* A!.2 2*(3/43 A2/6 &32*72*(1 2&3 <(/0>2. 07 2* 6&D*3 .2*6 .&D* &, (!>2.,0;* =*4F >*&4-* 07/4 !(-* &) $*(,/(1/!4>

A2!-;!' !/45303' 1(!=*3' 2*(' 6&1' &41' 32*' A&41*(3' .2(/0>2.' !(**-*' .!;;' 2/-03' D!4>' /,' 2/-!3' 2*&;3' &41' 6&((!*3' 2*(
8@9' ' 3!3.*(' /,' !77 ;5.*' :0**4' /,' .2*'/,' .2*' /0(' 041(*1' 2*' A&3' &--03*1' /,' 2!>2' .(*&3/4' &41' !4' 37!.*' /,' &' 6&3.*(;5' 1*,*4-* [.2*',!(3.' 37**-2' 2*' 2&1' *=*(' 6&1*' !4' 70<;!-' ['A&3' -/41*64*1' ./' 1*&.2' 4 ' C$$' ,' .2*' 3!0.5' /(&.!/43' &..(!<0.*1' ./' 2!6' /4;5',!,.**4' &(*' 7(*3*(=*1' &;;' /4' .(!&;3' ,/(' 60(1*(" <0.' /4;5' .2(**' /,' .2*6' &(*' &</0.' (*&;' -&3*3' 2*' (*3.' 8<&6*1' R 1 ' <*-&03*' *=*(5' ,/0(' &(*' .2*' ,!(3.' &41' 3*-/41' 37**-2*3' /,' </.2' 7;&!4.!,' &41' 1*F ,*41&4.' /4' .2*' 3&6*' 30<(*-.9' &(*' 6*(*' *0*(-!3*3' 4.!72/43'37B2*3'*02!<!.'.2*' &(.' /,' /(&./(5'!4'!.3' (01!6*4.&(5'3.&>*' &3' (*>&(13'</.2'30<3.&4-*' &41',/(6
4.!3.2 4*3' ' (**D' 72!;/3/72*(' /,' .2*43'</6'&</0.'CCN'7/'<0.' 4;5'&'2&;,' -!.!Q*4'<*-&03*' 2!3' 6/.2*(' A&3' &' 2(&-!&4' *' A&3' !4' 2!3' 5 0.2' &' 707!;' /,' /(>!&3' &41' 2!63*;,' .&0>2.',/(',' .!6*' &3' &' 3/72!3.' .!;;'./A&(13'6!11;*';!,*'2*'&..&-2*1'2!63*;,' ./' /-(... 3'&41'<*-&6*' 2!3'</3/6',(!*41' ,.*(' .2*' 1*&.2' /,' /-(&.*3' !4' -' TT' 2*' *3.&<;!32*1'&' -2//;' !4' .2*' >5643&3!06' :" 1 ' .2*' /4;5'/4*' /7*4' ./'B(3/43' /,' 2&;," .2*4!&4'1*3-*4.' A2*4-*' 2!3' ,/;F ;/A*(3' </(/' .2*' 4&6*' /,' 754!-!'&!" ' *' ;!=*1' ./' .2*' &>*' /,' 3*=*4.5' !D*' /-(&.*3' 2*' (*>&(1*1' =!(.0*' &3' 4*-*33&(5' !41**1' &;/4*' 30,,!-!*4.',/(' 2&77!4*33' &!!1' ./' <*' &' <(&4-2' /,' D4/A;*1>*' .2&.' -/0;1'!<*' .&0>2.' &41' .2&.' /4-*' &-:0!(*1' -/0;1' 4/.' <*' ;/3.' !.3' *33*4-*' -/43!3.!4>' !4' ,(**1/6' ,(/6'A&4.3'<5'.2*' &=/!1&4-*' /,' &6' ' ; ' /,' 7;*&30(*' &41' 1*3!(*' .3' &-:0!3!.!/4' 4**13' 4/' 1!&;*-.!-' &(>06*4.&.!/4' /4;5' /-(&.!-' 3.(*4>.2' !3' 707!;3' *37*-!&;;5' .2*',&6/03'!" 1 " ' /,' !4 7*' 1*>(&1*1' 2!3' 1/-.(!4*' ./' -54!-!36' <5' 1*7(*-!&.!4>' &;' D4/A;*1>*' &41' 1*37!3!4>' .2*' -0((*4.' 6/(&;!.5' /,' .2*' .!6*' !3' 72!;/3/72!-&;' &41' (2*./(!-&;' A/(D3' &(*' ;/3.' &;;' <0.' .A/' 3;!>2.' 1*-;&6&.!/43' /4' .2*' -/4.*3.' ,/(' .2*' &(63' /,' -2!;;*3' .2*' ' &41' : ' &41' *=*4' .2*!(' >*40!4*4*33' !3' 1!370.*1
4.!3.!43' /'&T " ' '(*4/A4*1' K0(!3.' /,' 0>03.03' .!6*' &' 6&4' /,' A!1*' -2/;&(32!7' &41' 3.(!-.' (*70<;!-&4' =!*A3' A2!-2';/3.' 2!6' .2*' *67*(/(3',&=/0(' !3' A(!.!4>3' /4' ;&A' &6/04.*1' ./' CNN' </!D3' 7/(.!/43' /,' A2!-2' &(*' 7(*3*(=*1' !4' .2*' , " ' .a,' 03.!4!&43' $ ' ' !6!4>' &.' &' 7(/>(*33!=*' 1*=*;/76*4.' /,' ;&A' 2*' <*-&6*' .2*' ,/041*(' /,' &' 3-2//;' /,' ;&A5*(3' 4&6*1' , " ' &,.*(' 2!3' 707!;' " ' , ' ' ' !#' &) $
4./4!403' 8$9' ' ' 30("

4&6*1 , ((</(4 &. / 6 * $@$!3 (*&; 4&6 * A&3 44!43 *(03 &. .2* 1*3!(* /, .2* *67*(/(&1(!&4 2* A&3 &1/7.*1 <5 2!3 30--*33/(0(*;!03 4F ./4!403 !03 6&((!*1 2!3 1&0>2.*(&03F .!4& &41 <*-&6 * *67*(/(!4 $?$ 0(!4> 2!3 <*4*=/;*4.((*!>4 .2* *67!(* 2&1 ./ ,&-* 1!(* 1!3.(*33*3 ,&6!4* 7*3.!;*4-* &41 -/43.&4. A&(3 A!.2 .2* &(.2!&43 !4 .2* *&3. &41 .2* &(-/6&44!* &41 /.2*(*(6&43 !4 .2* 4/(.2 10(!4> A2!-2 2* 7(/=*1 2!63*;,&(7(01*4. &41 &-.!=* 3/=*F (*!>4 4 .2* 6!13. /, &(4*A A&(A!.2 .2* &;(*&15 =&4:0!32*1 &(-/6&44!* 2* 1!*1 !4 $RN 7(/<&<;5 &. !(6!06 !4 &44/4!& 4 2!3 5/0.2 2* A&3 &(707!;, .2* /(&./((/4./ &41 ;/=*1 2!6 A&(6;5 ./ .2* ;&3. *=*4 &,.*(>!=!4> 07 (2*./(!- &41 1*=/.!4> 2!63*;,./ .2* ./!- 72!;/3/F 725 2* >*4.;*4*33 &41 &6!&<!;!.5 /, 2!3 4&.0(* -/6*3 /0. </.2 !4 2!3 ;*..*(3 ./ > # &41 !4 2!3 2 " R " A2!-2 &(* .2* 6/(&; (*,;*-.!/43 /,(& ./!-! !4 -;0635 /=*("-/4-!3** &41 /,.*4 /<3-0(* (** 8@9 " " " ; &((**D &6" 6&(!&4 /, &</0.$VN 7*(2&73 &, ,(**1" 6&4 /, 4./4!403 !03" 2* A(/.* &-/;;*-F .!/4 -&;;*1 (/, ,/(.5"/4* 65.23 1*&;!4> A!.2 .(&43,/(6&.!/43 6/3./, A2!-2 !3 <&3*1 /4 &4-!*4. &0.2/(!.!*3 4/A ;/3. &41 !3 .2*(*,/(* =&;0&<;* &3 &3/0(-* /, 65.2/;/>!-&; D4/A;*1>* 40<!3 4 >57.!&4 >/1 3/4 /, 3!(!3 -/4F 10-./(&41 A&.-2*(/, .2* 1*&1 A2/3* 1**13 2* &41 / # A*(* 3077/3*1 ./A*!>2 !4 .2* <&;&4-* !4 7(*3*4-* /, .2*!(,&.2*(3!(!3 * A&3 (*7(*3*4.*1 A!.2 .2* 2*&1 /, &K&-D&; /(1/>"&7* 2* A/(32!7 /, 40<!3 A&3 !4.(/10-*1 &6/4> .2* (**D3 &41 /6&43 8A2/(*7(*3*4.*1 2!6 !4 .2*,/(6/,&1/>9 ./>*.2*(A!.2 .2&. /, *(&7!3 &41 3!3 *37*F -!&;5 !4 .2* .!6* /,.2* *67*(/(3 &3 2* A&3 !1*4.!,!*1 A!.2 *(6*3 7;>/>* .*-24!-&;.*(6/, .2*4!&4 ;&A 6*&4!4> .2* 7(/10-.!/4 /, &-0!6!4&; .&D*4 !4 .2* &-. <*,/(* ,2* 7(/7*(6&>!3F .(&.* A2/ .2*4 .//D 2!6 !4./ -03./15 /(6&1* 2!6 ,!41 <&!; 2* 4&6* A&3 &;3/ >!=*4 ./ .2* 1/-06*4.!4 A2!-2 .2* &--03*(3.&.*1 .2* -2&(>* 0.!, .2* /,! -*(A&3 -/4F 10-.*1 ./ .2* 37/. A2*(* .2* &--03*1 A&3" 3.&5!4>* .2* 7(/-*33 A&3 -&;;*1 < (1 7J.0(! 2*>*4*(&;,*&3./, .2* ! & 2*;1 -2!*,;5 <5 (**D3 /, .2* /4!&4 (&-* .2*43 !.;&3.*1 .2(** 1&53 !4 .2* 6/4.2/, 5&4*73!/4 8 -. " /=9 &41 A&3 -*;*<(&.*1 A!.2 3&-(!,!-!&; <&4:0* .3 4 .2* .2!(1 1&5 .2* ,&.2*(3 <(/0>2. .2*!(-2!;1(*4 </(4 3!4-* .2* ;&3. -*;*<(&.!/4 <*,/(* .2* 6*6<*(3 & (&33*6<;*1 &. .2* 2*&1:0&(.*(3 /, *&-2 &41 &,.*(1*-;&(!4> /4 /&.2 .2*!(;*>!.!6&.* <!(.2 &1 .2*!(4&6*3 !43-(!<*1 /4 .2* (/!; /, (/(*=*(5 -2!;1 *4(/;;*1 &32**7 /(>/&. A&3 3&-(!,!-*1 A2!-2 A*4. ./ ,0(4!32 .2* -/6 6/4 ,*&3. 4 .2* 3&6*1&5 .2* ,&.2*(3 6&1* .2*!(-2!;1(*4 A2/ A*(* &. 3-2//;>!=* 7(//,3 ", .2*!(7(/>(*33 *37*-!&;;5 <5 (*-!.!4> 7&33&>*3 ,(/6 7/*.3B &41 .2/3* A2/ 1!3.!4>0!32*1 .2*63*;=*3 A*(* (*A&(1*1 A!.2 7(!Q*3 7*;;*3 2* >(*&.*3. 7&!4.*(/, &4.!F :0!.5 7(/<&<;5 </6 &. /; 72/4 /(!4 .2* 3;&41 /, -3 A2/ ;!=*1 !4 .2* ;&..*(2&;, /, .2* C.2 -*4.0(5 / ,.*(3.015!4> &. 72*3!;3 &41 (*-*!=!4> .2*/(*.!-&;* !43.(0-F .!/4 !4 2!3 &(. ,(/6 &672;;03 &. !-5 4 2* A/(D*1 !4 1!,,*(*4. 7&(.3 /, .2* (**D A/(;1 <0. *37*-!&;;5 !4 &-*1/4!& &. .2* -/0(./, 2!;!7 &41 .2&. /, ;*O&41*(A2* A/0;1;*.4/ /.2*(&(.!3. 7&!4. 2!6 2 * 1/!4> (*&15 K03.!-* ./ .2* 6*(!.3 /, -/4F .*67/(&(!*3 *37*-!&;;5 (/. >*4*3 2* -/0;1 4/.<0.(*-/>4!3* .2&. 4/ /4* 30(7&33*1 2!6F 3*;, !4 >(&-* &41 <&;&4-*1 2&(6/45 2*3* :0&;!.!*3 ./>*.2*(A!.2 2!3 A/41*(,0; 3D!;; !4 1(&A!4> &41 2!3 7*(,*-. &41 (*,!4*1 6&3.*(5 /, -/;/0(!4> 82/A*=*(3!67;* 2!3 6*&43 6&1* 2!3 A/(D3 .2* 6 3. 7*(,*-. 7(/10-.!/43 /, (**D 7&!4.!4> 6/4> .2* ,/(*6/3. A*(* .2* - " A!.2 ;!>2.4!4> !4 2!3 2&41 7&!4.*1 ,/(.2* .*67;* /, (.*6!3 &. 72*303 !4 A2!-2 .2* ,!4>*(3 &77*&(*1 ./ 3.&41 /0. /, .2* 7!-.0(* &41 .2* .2041*(</;. ./ 7(/K*-. ,(/6 .2* 7&4*; &41 .2* (" : " #O- (-1 7&!4.*1 ,/(.2* .*67;* /, 3-;*7!03 &. /3 A2!-2 0>03.03 <(/0>2. ./ /6* &41 3*. 07 !4 .2* .*67;* /, 3*3&(&41 A2!-2 A2*4 .2* ;/A*(7&(. A&3 1&6&>*1 4/ 7&!4.*(A/0;1&..*67. ./ (*3./(* * /A* ./ 0-!&4 & 1*3-(!7.!/4 /, &4K &;*>/(!-&; 7!-.0(* /, " <5 2!3 7&!4.*(f ;!45 8 D $F MOAOM Z 72(1 .* 8 &. = " 2* (**D >/1F 1*33 /, ;/=* *(&..(!<0.*3 -/6<!4* A!.2 *;;*4!B- -/4-*7.!/43 &>(*&. 6&45 ,*&.0(*3 /, &3.*(4 *37*-!&;;5 2/*4!-!&4 *(A/0;1 &

.2*!(' 4&.!=*' 4/.!/43' !4' =*(5' /;1' .!6*3' 2!3' 1/0<;*' 4&.0(*' &77*&(3' !6 6*1!&.*;5' !4' .2*' -/4.(&1!-./(5' .&;*3' /,' 2*(' /(!>!4' /' .2*' /;1*3.' (**D3' 32*' A&3' .2*' 1&0>2.*(' /,' L*03' &41' !/4*' 8&41' !3' 3/6*.!6*3' -&;;*1' .2&.' 4&6*' 2*(3*;,9" 5*.' ,(/6' &' =*(5' *&(;5' .!6*' 32*' &77*&(3' &3' (21 " !' .2*' H ,/&6'" </6!' & ' = &*!#(' &3' " : " !' P' 32*' A2/' (!3*3' !' /0.' /,' .2*' 3*&' &41' 3.*73' &32/(*' /4' 57(03' A2!-2' 2&1' ;+*4' -/;/4!Q*1' <5' 264!-!&43' .!6*' /0.' /,' 6!41" *=*4' &3' ,&(' <&-D' &3' /6*(' 32*' !3' : ' .2*' 57(!&4' 2*' 3&6*' .(&436&(!4*' &41' &3.*(4' /(!>!4' /,' 2*(' A/(32!7' !3' *=!1*4-*1' <5' .2*' ;*>*41' /,' .2*' !3;*' /,' 5.2*(&' /4' A2!-2' 32*' A&3' 3077/3*1' ./' 2&=*' ,!(3.' ;&41*1' /0.' /,' &' 3*&" 32*:;;

>&!4' .2*' -/66/4' -/4-*7.!/4' /,' 2*(' &3' >/11*33' /,' ;/=*' ;!6!.3' 2*(' &>*4-5' ./' .2*' 372*(*' /,' 206&4' ;!,*' 0.' 32*' !3' &.' .2*' 3&6*' .!6*' &' 7/A*(' /,' 4&.0(*' ;!=!4>' &41' A/(D!4>' !4' .2*' .2(**' *;*6*4.3' /,' &!(' *&(.2' &41' A&.*(' 3' >/11*33' /,' .2*' 32!,.!4>' >&;*' &41' -2&4>*,0;' 3D5' 32*' !3' (" ' .2*' H' 2*&=*4;5!' &41' &.' 6&45' 7;&-*3' !4' (**-*' &41' 3!&' 2*(' .*67;*3' -(/A4*1' .2*' 2*!>2.3' &41' 2*&1;&413" A!.4*33' .2*' -!.&1*;3' /,' 2*<*3' &41' /(!4.2' &41' /04.' (50' !4' !-!;5' 3' >/11*33' /,' 3./(6' &41' ;!>2.4!4>' 32*' A&3' (*7(*3*4.*1' &(6*1' &3' &.' 7&(.&' &41' 5.2*(&" &41' .2!3' 7*(2&73' *07;&!43' A25' 32*' A&3' &33/-!&.*1' A!.2' (*' 8 &(39' </.2' !4' A/(32!7' &41' !4' ;*>*41' &41' A/(32!77*1' &3' &' >/11*33' /,' =!-./(5

2*' 6/(&;'-/4-*7.!/4' /,' 72(/1!.*' (&4!&' &3' >/11*33' /,' .2*' 2!>2*(' &41' 70(*(' ;/=*' *37*-!&;;5' A*11*1' ;/=*' &41' ,(0!.,0;4*33' &3' /77/3*1' ./' 6*(*' 3*430&;' ;03.' A&3' <0.' 3;/A;5' 1*=*;/7*1' !4' .2*' -/0(3*' /,' &>*3 3' >/11*33' /,' .2*' ' &41' 6&(!F .!6*' .(&,!J-' *37*F -!&;;5' /,' -&;6' 3*&3' &41' 7(/37*(F /03' =/5&>*3' 32*' A&3' A!1*;5' A/(F 32!77*1'<5'3&!;/(3' &41' ,!32*(6*4' &.' 7/(.3' &41' /4' 3*&" -/&3.3' /,.*4' &3' .2*' >/11*33' /,' -&;6' A2!;*' /3*!1/4' A&3' .2*' >/1' /,' 1!3.0(F <&4-*' *0.' &3' (*>&(13' .2*' ;!,*' /,' .2*' (' 32*' !3' .2*' >/11*33' /,' >&(1*43' &41' >(/=*3' /,' 7(!4>' &41' !.3' </04.!*3' *37*-!&;;5' .*41*(' 7;&4.3' &41' ,;/A*(3' &3' .2*' (/3*' &41' 65(.;*" 2*4-*

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&3' .2*' ,(0!.,0;' &41' </04.!,0;' 32*' A&3' A/(F 32!77*1' 6/3.' /,' &;;' &.' .2&.' 3*&3/4' /,' .2*' 5*&(' !4' A2!-2' 2*(' <!(.2' ,(/6' .2*' 3*&' A&3' -*;*<(&.*1' &.' &72/3' !4' 57(03' # ' -0.9' 0.' ./' .2!3' 2*(' .!6*' /,'K/5,0;' &-.!/4' !3' /77/3*1' &' 3*&3/4' /,' 3/(((/A' A2*4' 2*(' -(*&.!/43' A!.2*(' &41' 1!*M' &' 3*4.!6*4.' *OF 7(*33*1' !4' 2*(' !4-/43/;&<;*' >(!*,' /(' 2*(' <*;/=*1' ' # ' .2*' 356</;' /,' =*>*F .&.!/4' 7*(!32!4>' !4' !.3' 7(!6* ' 4' .2*' ;!,*' /,' >/13' &41' 6*4' 32*' 32/A3' 2*(' 7/A*(' &3' .2*' >/;1*4' 3A**.;5' 36!;!4>' >/11*33' /,' <*&0.5' &41' ;/=*' A2!-2' 32*' D4/A3' 2/A'./' D!41;*' /(' ./' D**7' &A&5' 2*' /0.32!4*3' &;;' .2*' >/11*33*3' !4' >(&-*' &4.!' ;/=*;!4*33" !4' 2*(' >!(1;*' 32*' A*&(3' 04!.*1' &;;' .2*' 6&>!-' -2&(63' .2&.' -&4' <*A!.-2' .2*' A!3*3.' 6&4' &41' 0<10*' .2*' =*(5'>/13' *(' (*.!40*' -/43!3.3' /,' (/3' 8 07!19' .2*' /0(3' .2*' (&-*3' *!.2/' 87*(30&3!/49' <.2 3' &4.!' !6*(3' 87*(3/4!,!-&.!/43' /,' ;/4>!4>' &4.!' 5*&(4!4>9' 5' !6!.!4>' .2*' >*4*(&.!/43' !4' .2*' </41' /,' ;/=*' 32*' <*-/6*3' &' >/11*33' /,' 6&((!&>*' &41' ,&6!;5' ;!,*' &41' .2*' -/43*F :0*4.' D!432!7' /,' .2*' A2/;*' -/66 04!.5' 3' 30-2' 32*' 2&.!' ,/(6*(;5' <**4' A/(32!77*1' &.' .2*43' 041*(' .2*' 4&6*' /,' , " '8_' &;;' .2*' 7*/7;*39' &3' <*!4>' &' >/11*33' /," .2*' A2/;*' -/04.!5' 5' &' (*>0;&.!/4" /,' /;/4' .2*' 4&6*' &-:0!(*1' &' =*(5' 1!,,*(*4.' 3*43*' <(&41!4>' 2*(' &3' >/11*33' /,' 7(/3.!.0.!/4" .2*4' !.' A&3' .2&.' .2*' 4*A' &41' 2!>2*(' 6*&4F !4>' A&3' !67/(.*1' !4./' .2*' A/(1' (&4!&' 4' ;&.*(' .!6*3' .2*' A/(32!7' /,' 72(/1!.*' &3' .2*' >/11*33' /,' 6*(*' 3*430&;' ;/=*' 6&1*' (&7!1' 3.(!1*3' &4.!' !4' 7&(.!-0;&(' 1!3.(!-.3' &330 6*1' ,/(63' 6/(*' &41' 6/(*' !66/(&;' !4' !6!.&.!/4' /,' .2*' 3*(=!-*3' 7*(,/(6*1' ./' ;/=*">/11*33*3' !4' .2*' &3.' *37*-!&;;5' &.' /(!4.2' A2*(*' ;&(>*' <&413' /,' >!(;3' A*(*' -/43*-(&.*1' &3' 3;&=*3' ./' .2*' 3*(=!-*' /,' .2*' >/13' &41' .2*' 7(&-.!-*' /,' 7(/3.!.0.!/4' 4.!' ;&.*(' 3.!;' .2*' A/(32!7' /,' 3.&(.*' .2*' 5(!&4' 72(/1!.*' 7*(,/(6*1' <5' *040-23' 37(*&1' &;;' /=*(' (**-* 4' .2*' (**D' 65.23' 72(/1!.*' &77*&(3' /--&3!/4&;;5' &3' .2*' A!,*' /,' *72&*3.03' *(' ;/=*' &1=*4.0(*3' A!.2' (*3' &(*' 4/./(!/03' (/6' .2*3*' 37(&4>' (/3' &41' 4.(/3' &(" 6/4!&' .2*' A!,*' /,' &1603' &41' *!6 3' &41' 2"<"3' 8,*&(' &41' &;&(69' &..*41&4.3' /4' .2*!(',&.2*(' 5' 4-2!3 3' 32*' A&3' .2*' 6/.2*(' /,' 4*&3' 2*' 2*&1": 0&(.*(3' /,' 2*(' A/(32!7' A*(*' &72/3' 6 ".203' &41' 1J;!' 4' 8&;;' !4' 57(039' 4!103' !4' /(!&4' 3!&' !4/(' /(!4.2' .2*' !3;&41' /,' 5.2*(&' &41' (50' !4' !-!;5' 3' 6/.2*(' /,' &(6/4!&' 32*' A&3' &'>0&(1!&4' 1*!.5' /,' 2*<*3' 6/4>' 7;&4.3' .2*' 65(.;*" 2*4-*

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!7/4 -//D*(5 *7/!3/4*1 2!6 3*;,/(,*&("/,3.&(=!4>.2/4>2&.2*.!6*/,2!3 1*&.2 2* A&3 3.!;;A/(.2 EUV NNN !3 4&6*<*F -&6** &7(/=*(<3/.2&.A*,!41 &4 &0.2/(/,&-/;;*-.!/4/,(*-!7*3 !4 .*4<//D3 7 $ " (1-*4.0(5& " 7!/4 (**D >(&6 6&(!&4/,.2* $3. -*4.0(5 &707!;/,;15603 &41 7(*3!F 1*4./,.2*72!;/;/>!-&;3-2//;&. ;*0&41(!& *&;3/A/(D*1 ,/(&.!6*&. /6*041*(! !<*(!03 &41 ;&01!03 =&!4 </&3.,0; 6&4 2* .(&=*;;*1 &</0. .2* (**D -!.!*3 >!=!4>7/70;&(;*-.0(*3/4 /6*(,2!3 6&45 A(!.!4>3 A* 2&=* /4;5,(&>6*4.3;*,. 2*>;/33*3/4 /6*(.2&.<*&(2!3 4&6* &(* /,;&.*(/(!>!4 /4.2* /.2*(2&41.2* /6*(!-;*0!-/4/,.2* 3/72!3.7/;;/4!03 !3 <&3*1 /4 2!3 >*40!4* /6*(!-;/33*3 !3 <!..*(-/67;&!4. 1 (. @ &1" %1(*33*1./ &;!>0;&&.2* !43.&4-*/,.2* " ;*0&41(!&43 !3 <*3.D4/A4,(/6 /3*7203 4/<;* (*7;5./!. 7/1*-.&* (*-*!=*(39 2* .2*4!&4 4&6* ,/(&</&(1/,&*(!>!4 /4 6&>!3F .(&.*3 5*&(;5 &77/!4.*1 <5;/.A2/D*7.' &--/04.3/,.2* 6/4*53 -/6!4>!4./.2* W .&.*,(/6=&(!/03 3/0(-*3./!D 7/33*33!/4 !4.2* -/04-!;3 7(*3*4-*/,.2* 3063 (&!3*1 <5.2* 7(/7*(/,,!-*(3 &41 &,.*(-&4-*;;!4> .2* *4.(!*3 !4 .2*!((*>!3.*(2&41*1 .2* 6/4*5 /=*(./.2* 3*=*(&;.(*&30(!*3 7?>(C72* 8 (9 4 !4=*4./(5 /(* (*>!3.*(" &;3/ !4 ..!-;&A & -/75/,& 1*-;&(&.!/4 6&1* <*,/(*& 6&>!3.(&.* 7/;;/ 8 (" /4/,L*03 <5; */ 8 &./&9 A2/ &--/(1!4>./.2*;*>*41 6/3. A!1*;5 -0((*4.</(* 2!6 &41 2!3 .A!4"3!3.*((.*6!3 8 !&4&9 &.2* ,//./, *&4. 54.203 !4.2* !3;&41 /, *;/3 7/;;/ &77*&(3 /(!>!4&;;5 &3 &>/1/,1(</.2 !4 !.3 <*4*,!-*4. &41 !.3 1*3.(0-.!=* *,,*-.3 &41/,;!>2. !4 >*4*(&;4/./,.2* 304/4;5,/(./.2** &(;5 (**D3 .2* 1*!.5 .2&.<(/0>2. 1&5;!>2. A&3 *;! 3 A!.2 A2/6!.!A&3 4/.!;;&,.*(A&(13 .2&. 7/;;/ A&3 !1*4.!,!*1 2!;* .2* 6*&4!4> /,2!3 6&6* 7/;;/ !3 04-*(.&!4 2!3 *7!.2*.3 /, ,(&41 ; : -;*&(;5 6&(D 2!6 &3 .2* <(!>2. .2* ;!,*">!=!4> .2* ,/(6*(&;3/ 6*&4!4> .2* 70(* 2/;5" ,/(&3 .2* >/1 ¢/, 70(* ;!>2. 2* !3 .2* *4*65 /,1&(D4*33 A!.2 &;;!.3 04-;*&4 04-/0.2 042&;;/A*1 ¥(//1 >&!4 4/. /4;5 .2* 3*=*4.2 1&5 /, .2* 6/4.2 2!3 <!(.21&5 <0. .2* ,!(3. 1&5 /,* &-2 6/4.2 /,* &-2 4*A"</(4 6//4 A&3 3&-(*1./2!6 &3!. A&3./ &403 %2* /6&4>/1 /,;!>2.* &41 &--/(1!4>./ G.2* =!*A .2&. 7(*=&!;*1 !4 6&45 3*&.3 /, "2!3 A/(32!7 2* A!.21(*A !4 A!4.*(.!6* %*!.2*(./ 30445 5-!& /(./ .2* 57*(F </(*&43 A2/ 1A*;;!4 7*(7*.0&;;!>2.!4 .2* 0.6/3. 4/(.2 &41 (*.0(4*1 !4 37(!4> ./ 1!37*;.2* 7/A*(3 /,A!4.*(A!.2 2!3 <*&63 2*4 .2* ,&<;* (*;&.*3 .2&. !6 6*1!&.*;5 &,.*(2!3 <!(.2 A!.2 .2* ,!(3.32/.,(/6 2!3 </A 2* 3;*A .2* 1(&>/4 5.2/4 8/(*;7254*9 &2!1*/03 /,,37(!4>/,.*& &41 >0&(1!&4/,.2* *;72!&4/(&-;*A2&.3** 63 ./ <* 1*4/.*1 603.<* .2* 37(!4>"/1 3 =!-./(5 /=*(A!4.*(.2&.,!;;*1 .2* ;&41 A!.2 ,/0; 6&(32 &41 6!3. 3 .2* >/1 /,;!>2. 2!3 &(* !4 37(!4>/(306 6*(&41 6&45 /,.2*6 3.!;;7;&!4;5 (*=*&;!4 -*(.&!4 ,*&.0(*3 2!3 .(0* &41 /(!>!4&;&..(!<0.*3 203 .2* 5 " 2*;1 &. .2*43 !4 7(!;*/6664-0&.*& .2* -&;6!4>/,.2* GA!4.(5 3*& &,.*(.2* *:0!4/-.!&;>&;*3 &41 .2* -/43*:0*4.(*F /7*4!4>/,4&=!>&./!4 3 .2!3 ,*&3. &3 !4 2/4/0(/,.2* >/1/,37(!4>3/A&3 .2* +(1 2*;1 &. .2*43 .2* 4*0. 6/4.2 !4 2/4/0(/,.2* >/1/,306 6*(2&.2* -(/73 6!>2.(!7*4 2* (*-*!=*1 ,!(3.,(0!.3/,.2*6 &41 &.2* 3&6* .!6* 7(/7!.!&./(5 >!,.3./!410-* 2!6./ &=*(.2* 7&(-2!4> 2*&.3/20(.,0;./ ,(0!.3 &41 6*4 </0. .2* .!6* /,.2* 304 3 >(*&.*3.&;.!.01* 8 0;5 &41 0>03.9 A2*4 .2* >/1 1!37;&53 2!3 7/A*(4/A,/(>//1 &41 4/A,/(2&6 .2* .2*4!&43 /,,*(*1 2!6 (A2*4-* .2* ,!(3. 6/4.2/,.2*!(5*&(A&3 4&6*1 " "&41 .2* 7&(.&43 2*;1 .2*!(: " (& & * "#(4 &0.064 A2*4*.2* >/1 A&3 (!7*4!4>.2*,(0!./,.2*!(>&(1*43 &41 7;&4.&.!/43 &41 7(*7&(!4>,/(1*7&(.0(* .2*5 -*;*<(&.*1 .2* : " & 2 A2*4 .2*5 7(*3*4.*1 2!6 A!.2 .2* ,!(3.,(0!.3/,2&(=*3. 7/;;/>!=*3.2* -(/73 7(/37*(!.5 &41 7(/.*-.!/4 4/. /4;5 &>&!43. 306 6*(<*&. <0. &>&!43. <;!>2. 601*A &41 .2* =*(6!4 .2&. 7(*5 07/4 .2*7! 30-2 &3 ,!*;1"6!-* &41 >(&332/77*(3 *4-* 2* A&3 D4/"A4 <5 37*-!&;.!.;*3 !4 3/6* 7&(.3 /, 3!& * A&3 &;3/ &7&.(/4/,;,/-D3 &41 7&3.0(*3 &41 A&3 A/(3677*1 !4 6&45 1!3F .(!-.3 041*(&=&(!*.5 /, 4&6*3 (*,*((!4> ./ .2* <(**1!4>/,;-&..;* 4 .2* 3./(5 *(6*3 8 I 9 3.*&;!4>2!3 /0*4 7/;;/ !3 2!6 3*;,.2* /A4*(/,& 2*(1 A2!-2 2* >!=*3 07 ./2!3 <(/.2*(!4 *0-2&4>*,/(.2* ;5(*!4F =*4.*1 <5 2!6 .2*(&4-!*4.;*>*413 37*&D /, 2!6 &3 .*41!4> .2* ,;/-D3/, &16 1/4 &41 16*.03 &4 &-. &,.*(A&(13 (*7(*F 3*4.*1 &3 &7*4&;.5,/(&,0;. 3 &>/1 ,32*72*(13 2* 6&D*3 ;/=* ./.2* 456723 ./.2* ,&!(&724* 8:" 9 ./ /(/4!3 & #) $#(&41 ./ 8B(*4 .2* 6/.2*(/, (!3.603 ;!D*A!3* &>/1/,2*(13 /6*

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,/(63 /,2!3A/(32!7&41 3/6*=*(3!/43/,2!3 3./(5!67;5.2&. 7/;;/ ;!D* 2!3 3!3.*((.*6!3 A&3 (*>&(1*1 &3 &7(/.*-./(/,.*41*(>&6* &41 &3;&5*(/,(&7&-!/03 <*&3.3 *37*-!&;;5 /,.2* A/;,.2* *4*65/,;/-D3 &41 2!63*;,&3 356</; /,.2* >/13 7/A*(.2&. 4/A 3*413 6!3-2!*, &41 4/A &=*(.3 !. 7/;;/ 7(/6/.*3 .2* 2*&;.2 &41 A*;;"<*!4> /,6&4 2!63*;, 3 &>/1 /,7(/;!,!-7/A*(2* A&3!4=/D*1&. A*11!4>3 &41 &3 &40(3* /,.*41*(6&42//1 &41 .(&!4*(/,6&4;55/0.2 ./ 2!6 8&3 A*;;&3 .2* ,/04.&!4"456723 A*(* -/43*-(&.*1 .2 ,!(3./,,*(!4>3 /,.2* 2&!(/,.2* 2*&1 4 1: &41 2* A&3 A/(32!77*1 *:0&;;5 A!.2 *(6*3 &41 *(,.-;*3 ,/(2* >&=* 7/A*(/,*410(&4-* !4 </0!4> A!.2 &1(/!.4*33 &41 ,;**.4*33 /,,//. 3 & A&(F ;!D* >/1 &41 /4* 2*;7,0;!4 ,!>2. .2* 7&(.&43 7&!1 2!6 7*-0;!&(2/4/0(3 !4 .2*!($ " 8K=9 &41 !4 B 6*&30(* .2* .2*F 4!&43 !4 .2*!(4/.2*(.2*F 4!&4 ,*3.!=&; .2* 1 " >;/(!,!*1 2!6 &3 .2* &0.2(/,4*!>2</0(;5 04!/4 4 6&45*7;&-*3 <0.&</=* &;;&. .2*43 2* A&3 A/(32!77*1 &3 1: .2* >/1 /,3.(**.3 &41 2!>2A&53 A2/3* (01* 356</; & -/4!-&;7/3. A!.2 &7/!4.*1 *41!4> 3.//1 <5 3.(**."1//(3 &41 !4 -/0(.5&(13./ A&.-2 6*43*0!./ &41 *4.(&4-* ./ ;*. !4 >//1 &(!1 D**7 /0.*=!; &41 A&3 ;/&1*1 <5.2* !46&.*3 A!.2 >!,.3 /,2/4/0(30-2 &3 (!<</43 A(*&.23 /,65(.;* /(<&5 &41 .2* ;!D* .3*& 3 A*;;&3 /4;&41 7/;;/!3 &>0!1*&41 >0&(1!&4 &41 .2*(* 37*-!&;;5 041*(.2* 4&6* 5 " .&D*4 ,(/6 2!3 ,(!*41 &41 &;5 .2* 1/;72!4 .2* 356</; /,.2* 4&=!>&<;* 3*& 41*(.2!3 -2&(&-.*(2* A&3 A!1*;5 A/!32!77*1 ,/(.2* 6/3. 7&(. A!.2 7*-0;!&(7(/7!.!&./(5 (!.*3 !4 3*&7/(.3 &41 /4 7(/6/4./(!*3 &3 .2&./,-.!06 &41 7&(.!-0;&(;5 &. .2*43 <*!4>&;3/ (*>&(1*1 &3 &;*&1*(/,-/;/4!*3 2!;* 2* !3 - 8&=*(.*(/,!;;39 !4 .2* A!1*3. 3*43* 2* 7(/=*3 2!3 7/A*(6/3. *37*-!&;;5 !4 .!6*3 /,3!-D4*33 ,/(<*!4> /1 /,.2* 2/. 3*&3/4 &41 2!63*;,.2* 3*41*(/,6/3. *7!1*6!-3 &41 .2* 1(*&1*1 7;&>0* 3A**7!4> 6&4 3A!,.;5 &A&5 A!.2 2!3 04*((!4> 32&,.3 2* -&4 &;3/ ;*41 .2* 6/3. *,,*-.0&;&!1 3/.2&. 2* &41 2!3 3/4 3-;*7!03 A*(* (*=*(*1 &3 .2* -2!*, >/13 /,2*&;!4> 3 &3 3&=!/0(,(/6 *7!1*6!-3 6&!4;5 <0. &;3/,(/6 /.2*(*=!;3 .2* "A&3 304> !4 2!3 !/4/0(4 &2!>2*(3*43* &;3/ 7/;;/!3 &2*&;*(&41 3&=!/0((/6 &4 *&(;5 .!6* &3.(/4> *.2!-&; .!4>* A&3 >!=*4 ./ 2!3 70(*;5 725F 3!-&;&..(!<0.*3 &41 .2*>/1 /,;!>2.<*-&6* &>/1 /,6*4.&;&41 6/(&;70(!.5 &41 .2*(*F ,/(* /,/(1*(K03.!-* &41;B&;!.5 !4 206&4" ;!,* 3 30-2 2* /4 .2* /4* 2&41 36!.*3 &41 37&(*3 4/./ .2* !43/;*4./,,*41*(!./ '"3 ,/(!43.&4-* .2* ;/!13* .2* /=*(A**4!4>! !"<* &41 .2* (**D3 <*,/(* (/5 <0. /4 .2* /.2*(2&41 ./ .2* >0!;.";&1*4 3/0; .2&. .0(43./ 2!6 !4 7*4!.*4-* &41 3077;!-&.!/4 2* >(&4.3 70(!,!-&.!/4 ,(/6 .2* 3.&!4 /.-/66!..*1 -(!6* 8A2!-2 A&3 (*>&(1*1 &3 &1!3*&3* -;/01!4> .2* 6!41"&41 -(032!4> .2* 2*&(.9 &41 3/ 2* 2*&;3.2* 37!(!. &41 (*&16!.3.2* /0.-&3. !4./ -!=!-;!,* &41 (*;!>!/03 ,*;;/A32!7 ,.2!3 2* 2&1 2!6F 3*;,3*.2* 7&..*(4 A2*4 &,.*(3;&5!4> .2* *;72!&4 1(&>/4 2* ,;*1 ,(/6 .2* ;&41 1!1 3*=*4 5*&(3 6*4!&; 3*(=!-* ./ 16*.03 !4 &./4*6*4.,/(.2* 60(1*(&41 A2*4 .2* .!6* /,7*4&4-* A&3 7&3.2&1 2!63*;,70(!,!*1 !4 .2* 3&-(*1>(/=* /,<&5" .(**3 <5.2* 2*33&;!&4 .*67;* &41 4/./.!;; .2*4 1!1 2* (*.0(4./ *;72!&41 *4.*(/4 2!3 /,,!-* &3 7(/72*./,L*03 2*(*,/(" 2* *0&-.3 ,(/6 &;; & (*-/>4!./4 /,.2* &./4!4>7/A*(/,7*4&4-* !4 .2* .**.2 /,.2*" /;1 ;&A /,=*4>*&4-* ,/(<;//1 A2!-2/4;5 <(*1 4*A 60(1*(3 &41 4*A >0!;. 2* &./4!4>(!.*3 7(/7&>&.*1 <5 7/;;/3 A/(F 32!7 7&(.!-0;&(;5 ,(/6 *;72!-/4.(!<0.*1 ;&(>*;5./ .2* 37(*&1 /,6!;1*(6&0!63 /,; ;&A &,,*-.!4> 4/./ /4;5 !41!=!10&; K <0. A2/;* ./A43 &41 -/04.(!*3 =*4 A!.2/0. 37*-!&;7(/67.!4> .2* 7*/7;* ,*;.,(/6 .!6* ./ .!6* .2* 4**1 /,70(!,!-&.!/4 &41 *07!F &.!/4" 2*4-* -*(.&!4 *07!&./(5 (!.*3 2&1 ,(/6 /,/;1 <**4 -/44*-.*1 A!.2 2!3 ,*3.!=&;3 3 .2* >/1 /,;!>2. A2/ 7!*(-*3 .2(/0>2 &;;1&(D4*33 7/;;/!3 .2* >/1 /, " " A2!-2 2/A*=*(2&3 !4 2!3 -&3* & 70(*;5 *.2!-&;3!>4!,!-&4-* ,/(2* &3 7(/72*. &41 6!4!3.*(/,2!3 ,&.2*(L*03 6&D*3 D4/A4 2!3 A!;;./ 6*4 &41 2*;73 ./ ,0(.2* 2!3>/=*(4F 6*4. !4 .2* A/(;1 * &;A&53 1*-;&(*3 .2* .(0.2 <0. .2* ;!6!.*1 6!41 /, 6&4 -&44/. &;A&53 >(&37 .2* 6*&4!4> /, 2!3 3&K143 * !3 .2* 7&.(/4/,/*=*(5 D!41 /,7(/72*-5 <0. 6/3. *37*-!&;;5 /, .2&. A2!-2 2*!67&(.3 .2(/0>2 206&4 !43.(06*4.3 -2!*,;5 A/6*4 A2!;* !4 &3.&.* /,*-3.&35 (*&. &3 A&3 .2* 406<*(/, 2!3 /(&-;*3 !4 (**-* &41 3!& &;; A*(* *-;!73*1 !4 ,&6* &41 !67/(.F &4-* <5 .2&. /, *;72!F 7/ /*0*(-!3*3&4*;*=&.!4>&41!437!(!4> !4,;0*4-* /4 .2* 6!41 &3 >/1 /, A2!-2 .2/0>2 4/. <*;/4>!4> ./ 2!6 &;/4* &45 6/(* .2&4 ./4*6*4. &41 (/72*-5 A&3 5*. 7(*"*6!4*4.;5 2!3 7(/=!4-* 4 /6*(2* !3 (*7(*3*4.*1 /4;5 &3 &7;&5*(/4 .2* ;5(* A2!;* 3/4> !3 .2* 7(/=!4-* /, .2* 03*3 <0. !4"-/0(3* /,.!6* 2* >(/A3

./' <*' .2*' >/1 ' &&' .2*5' &(*' .2*' >/11*33*3 ' /,'
3/4>' &41' 7/*.(5 '&41' !3' .2*(*,/(*' 1 '
8 *&1*(' /,' .2*' 03*39' &3' A*;;' &3' 6&3.*(' /,'
.2*' -2/(!-' 1&4-*' A2!-2' >/*3' A!.2' 6 03!-' &41'
3/4>' 41' &3' .2*',(!*41' /,' &;;' .2&.' <*&0F
.!,!*3' ;!,*' 2*' !3' !4.!6&.*;5' &33/-!&.*1' A!.2'
.2*' (&-*3
.&41!4>' !4' .2*3*' 6&4!,/;1' (*;&.!/43' ./'
4&.0(*' &41' 6&4' 7/;;/' &.' &;;' .!6*3' 2*;1'
&' 7(/6!4*4.' 7/3!.!/4' !4' .2*' (*;!>!/4' /,' .2*'
(**D3\f' &41' &3' *&(;5' &3' /6*(' 2!3' 4&6*'
!3' -/07;*1' A!.2' .2/3*' /,' L*03' &41' .2*4&'
&3' !,' <*.A**4' .2*6' .2*' .2(**' 7/33*33*1' .2*'
306' ./.&;' /,' 1!=!4*' 7/A*(' !3' A/(32!7'
A&3' 1!,,03*1' *:0&;;5' /=*(' &;;' .2*' (*>!/43'
d!4' A2!-2' (**D3' A*(*' 3*..;*1" <0.' ,(/6'
(*6/.*' &4.!:0!.5' 2*' 2&1' <**4' .2*-2!*,' >/1'
/,' .2*' /(!&43' A2/' A*(*' &;3/' .2*' ,!(3.' .!'
(&!3*' 2!6' !4./' &'.57*' /,' 6/(&;' *0-*;;*4-*'
2*" .A/'-2!*,' -*4.(*3' /,' 2!3' A/(32!7' A*(*'
.2*' 3;&41' /,' *;/3' 2!3' <!(.27;&-*' A2*(*'
&.' 2!3' 6&>4!,!-*4.' .*67;*' 3.&41!4>' <5' .2*'
3*&' A*(*' 2*;1' *=*(5',!=*' 5*&(3' .2*' ,*3.!=*'
>&6*3' -&;;*1' 5 ' ./' A2!-2' .2*' (**D'
3.&.*3' 3*4.' 3/;*64' *6<&33!*3" &41' *;72!'
A!.2' !.3' /(&-;*' &41" 406' /03' ,*3.!=&;3'#
* ' # ' /(*6/3.'&6/4>'.2*'
3*&.3' /,' 2!3' A/(32!7' !4' 3!&' A&3' ,!. (&' !4'
5-!&' A!.2' &',&6/03' /(&-;*
/' .2*' 7 " ' 7/;;/' <*-&6*' D4/A4'
!4' .2*' (*!>4' /,' .2*!(';&3.' D!4>' &(:0!4!03'
07*(<03' .2*' ,!(3.' /6&4' A2/' -/430;.*1'
.2*' *;72!&4' /(&-;*' &41' A2/' &;3/' &-F
:0!(*1' .2*' !<5;;!4*' //D3'#2 ' 5' .2*'
!4,;0*4-*' /,' .2*3*' A(!.!4>3' .2*' A/(32!7' /,'
7/;;/' 3//4' <*-&6*' 3/' 4&.0(&;!Q*1' &6/4>'
.2*6' .2&.' !4' ' C $' .2*5' <0!;.' &' .*67;*'
./' 2!6' &3' >/1' /,' 2*&;!4>' ,(/6' A2!-2' .2*'
*07!&./(5' 7(/-*33!/43'# ' $ ('
7(*3-(!<*1' !4' .2*' !<5;;!4*' <//D3' 03*1' ./' 3*.'
/0.' 4' .2*' ; " '# ',!,3.' !43.!F
.0.*1' !4' ' TT' 7/;;/' /--07!*3' .2*' ,/(*F
6/3.' 7;&-*' 4' @$@' ' 10(!4>' .2*' &>/45'
/,' .2*' *-/41' 04!-' &(' .2*' ; ' 2
" ' A*(*' !4' /<*1!*4-*' ./' &4' /(&-0;&('
(*37/43*' *3.&<;!32*1' !4' 2/4/0(' /,' 2!6'
' A&3' 6&1' /4*' /,' .2*' -2!*,' >/13' /,'
/6*' <5' 0B3.03' A2/' <*;!*=*1' 4!63*;,'
./' <*' 041*(' 2!3' 7*-0;!&(' 7(/.*-.!/4' &41'
&3-(!<*1' .2*' =!-./(5' /,' -.!06' ./' 2!3' &!1"
2*4-*' 2*' *4;&(>*1' .2*' /;1' .*67;*' /,' 7/;;/'
/4' .2&.' 7(/6/7'./75' &41' 1*-/(&.*1' !.' A!.2'
&' 7/(.!/4' /,' .2*' 37/!;3' *' &;3/' (*4*A*1'
.2*' >&6*3' 2*;1' 4*&(' !.' 7(*=!/03;5' *=*(5'
.A/' 5*&(3' &,.*(A&(13' *=*(5',/0(' A!.2'
>564&3.!-' &41' &(.!3.!-' -/4.*3.3' &41'
(*>&..&3' /4' .2*' 3*&" &.' /67' 2*' (*&(*1'
&' 37;*41!1' 4*A' .*67;*' ./' 2!6' 2*&(' 2!3'
/A4' 2/03*' /4' .2*' &;&.!4*' &41' .(&43,*((*1

.2*' ; ' # 2=' ./' 2!6' &41'
!&4&
2*' 6&4!,/;1' 56</;3' /,' 7/;;/' -/((*F
37/41' A!.2' .2*' 60;.!.01*' /,' 2!3' '
2*' -/66/4*3.' !3' *!.2*(' .2*' ;5(*' /(' .2*'
</A' &--/(1!4>' &3' 2*' A&3' -/4-*!=*1' &3' .2*'
>/1' /,' 3/4>' /(' &3' .2*' ,&("2!..!4>' &(-2*('
2*' *;72!&4' 1!=!4*(' 5.2!&4' 7/;;/' !3"
!41!-&.*1'<5' .2*' (!7/1' A2!-2' A&3'&;3/' .2*'
,&=/0(!.*' /,,*(!4>' &.' 2!3' &;.&(3' 6/4>'
7;&4.3' .2*' <&5' 03*1',/(' 70(7/3*3' /,' *07!&F
./4' A&3'*&(;5' &-(*1' ./' 2!6'# ' &) * ('
.' A&3' 7;&4.*1' (/041' 2!3' .*67;*3' &41'
7;&!.*1' !4./' >&(;&413' /,' =!-./(5' &.' .2*'
5.2!&4' >&6*3' 2*' 7&;6".//**' A&3' &;3/'
3&-(*1'./' 2!6',/(' !.' A&3' 0..1*(' &' 7&;6".7**'
.2&.' 2*' A&3' </(4' !4' *;/3' 6/4>' &4!6&;3'
.2*' A/;,' .2*' 1/;72!4' .2*' 34/A"A2!.*' &4&'
603!-&;' 3A&4' .2*' 2&AD' (&*4'-(/A' &41'
34&D*' A*(*' 041*(' 2!3' 37*-!&;' 7(/.*-.!/4"
.2*' ;&3.',/0(' !4' -/44*0!/4' A!.2' 2!3' 7(/F
72*.!-',04-.!/43
4' &4-!*4.' &(.' 2*' A&3' (*7(*3*4.*1' &3' &'
;/4>"2&!(*1' <0.' <*&(1;*33' 5/0.2' /,' .&;;' 5*.'
603-0;&(' <0!;1' &41' 2&413/6*' ,*&.0(*3'
6&>*3' /,' 2!6' A*(*' &3' &<041&4.' &3' 2!3'
A/(32!7' A&3' *0.*43!=*' .2*(*' A&3' 3-&(-*;5'
B' &(.!3.' /,' &4.!:0!.5' A2/' 1!1' 4/.' .(5' 2(3"

8 /6*' &.!-&4' 03*06 9

2&41' 07/4' 3/6*' !4-!1*4.' !4' .2*' 3./(5' /,'
7/;;/' 2*' !1*&;' .57*' /,' .2!3' >/1' 3**63'
./' 2&=*' <**4',!0*1' -2!*,;5'<5' (&0. ;*3' &41'
-/7&3' 2*' 6/3.',&6/03' 3.&.0*' 7(*3*(=*1

G/ 2!6!3.2* !4.2* &.!" G-&4 8,!> 9 A2!-2 (*7(*3*4.3 2!6**!.2*(&3 ,!>2.!4>A!.2 .2* 5.2!&4 1(&>/4 /(A!.2 2!3 3*>!3 ,(!>2.*4!4> <&-D .2* ,/*3 A2/ .2(*&.*4 ./ 3./(6 2!3 3&4-.0&(5 .2*(>(*&.A/(D3 &3.2* 1 !4.2* &.!-&4 7(/<&<;5,(/6 .2* 2&41 /, -/7&3 32/A 2!6 &3 &$ (!4 .2* ;/4> /4!&4 (/<* /(401* &3 !4 ,!>@ 2* " 8;!Q&(1"D!;;*(9 -/7!*1 ,(/6 &<(/4Q* 3.&.0* <5 (&O!.*;*3 !3 *3" G7*-!&;;5 -*;*<(&.*1 ,/(!.3 <*&0.5 .(*B 7(*3*4.3 &1*;!-&.* 5/0.2,0;,!>0(* ;*&4!4> &>&!43.& .(** 1&(.!4 2&41 (*&15./ 3.&<& ;!Q&(1.2&.!3 -(&A;!4> 07.2* .(** .!3 7(*3*(=*1 !4 <(/4Q* &.2* !;;& ;<&4! !4 /6* &41 !4 6&(<;* &. &(!3

8@9 ^

8 /6* &7!./;!4* O3*06 9

7/;;11/(43 8$9 (**D 7/*./,.2* *A /6*15</(4&. &(53.03<*.A**4 NN&41 d@?N 0 *A(/.* ,/(.5"3*=*4 7;&53 &41 A/4,!=* =!-./(!*3 (/6 2!6 *(*4-* </("(/A*1.2* 7;/.3 /,2!3, (&41 : 8@9 (**D >(&6 6&(!&4 &41 2!3./(!&4 G/.2*43 &</0. $CN " &707!;/, (!3F .&(-203&41.2* ./!-&43*.!03 *A&3&6 /3. 7(/;!,!-A(!.*(/4>(&6 6&(6 5.2/;/>5 >*/>(&725 &41 2!3./(5 /6* /,2!3A/(D3 A*(* A(!..*4 !4 !&6<!- " 1 &>*/" >(&725 &41 .2* $(" &-/41*43*1

406(&.!/4/,.2* 6/3. !67/(.&4. 1&.&!4 2!3./(5&41;!.*(&.0(*,(/6.2* ,&;;/, (/5 A2!-2 2* 7;&-*3 !4 4 $$R 1/A4 ./ 2!3 /A4.!6* 041/0<.*1;5.2* 6/3. !67/(.&4. /, &4-!*4. A/(D3 /4 .2* 30<(*-. *3!1*3 ,(&>6*4.3 A* 2&=* 041*(2!3 4&6* &</(D *4.!.;*1 (&>(*&. 3./(*2/03* /, 65.2/;/>!-&; 6&.*(!&;,(/6.2* /;1*3. .2*/" >/4!*3 1/A4./ 2*3*03 &41 A!.2 &;; !.3 ,&0;.3 /, &((&4>*6*4. &41 .(*&.6*4. & &=&;0&<;* &!1 ./ /0(D4/A;*1>* /, (**D 65.2/;/>5 *. .2*(* &(* >(/0413 ,/(1/0<.!4>A2*.2*(!. !3,(/6 2!3 2&41 &.&;;, A2*.2*(!.!3 *=*4 &4 *0.(&-.,(/6 2!3>(*&. A/(D "(6 !4 .A*4.5",/0(</D3 8 9 (**D 7&!4.*(/, .2*43 &</0.C@N .2*,!(3.A2/>(&10&.*1;!>2. &41 32&1* !4 2!3 7!-.0(*3 A2*4-* 2*(*-*!=*1.2* 4&6* /, 1 (832&1/A"7&!4.*(9 2!3 !4F =*4.!/4 *4.!.;*1 2!6./ <* (*>&(1*1 &3.2* ,/041*(/,& 4*A 3.5;* A2!-2 &!6*1 &. 7(/10-!4> !;;03!/4 <5 7!-./(!&;" 6*&43 &41 A2!-2 A&3 -&((!*1 /4,0(.2*(<5 2!3 5/04>*(/-/4.*67/(&(5 L*00!3 f 45 > V 9h 8C9 (**D &(-2!.*-./, &6&3-03 A2/ ;!=*1 ,/(&.!6* &. /6* A2*(* &6/4>3. /.2*(.2!4>3 2* <0!;. (&K&43 /(06 &41 (&K&43 /;064 * A&3 ,!(3. <&4!32*1 &41 .2*4 70./1*&.2 041*(&1(!&4 $@T 2&=!4> !4-0((*1 .2&. *67*(/(3 &4>*(<5 .2* ,(**1/6 /, ,!!3 (*<0D*3 *2&=* &A/(D" <5 2!6 /4 9"1 " M &1F 1(*33*1./ &1(!&4

7/;;14!03 8$9 (7(1 " (**D 3-2/;&(&41 *7!-7/*./, .2* ;*0&41(!&4 &>* </6 &. ;*0&41(!& &</0. @?N 4 & 707!;/, &;;!6&-203 A(/.* &;/4>* *7!- +(1 " !4 ,/0(<//D3 !4 A2!-2 1*7&(.!4>,(/6 2!3 6&3.*(3 .&3.* ,/(.2* ;*&(4*1 &41 &(.!,!-!&; 2* &!6*1 &. &;; .2* 3!67;!-!.5 /, /6*(2* 7&(.5 /, &;;!F 6&-203 (*K*-.*1 .2* 7/*6 &41 7/;;/4!03 (*.!(*1 !4 1!3>03. ./ 2/1*3 A2*(* 2!3 ;&</0(3 &3 &41 (2*./(!-!&4 &41 2!3 4*A;5 (*F =!3*1 7/*6 A/4 2!6 2*&(.5 (*-/>4!./4 &41 *=*4 &16!33!/4 ./ .2* -!.!Q*432!7 *4-* 2!3 30(4&6** ,.*(A&(13 (*.0(4!4> ./ ;*0&41(!& 2* (*-!.*1 2!3 7/*6 /4-* 6/(* &41 .2!3 .!6* A!.2 04!=*(3&; &77;&03* 3/ .2&. ./;*65 7!72&4*3 !4 4 $T?* &7F 7/!4.*1 2!6 ./ 30--**1 (&./3.2*4*3 &3 ;!<(&(!&4 * 7(/<&<;5 1!*1 10(!4> .2* .*40(* /, .2!3 /,!,!-* !3 *7!-77*6 A2!-2 2&3 30(=!=*1 2&3 &-*(.&!4 3!67;!-!.5 .2/0>2 ,&;;!4>, &(32/(.; /, .2* 4&.0(&;4*33" &41 <*&0.5 /, /6*(" !.3 04!,/(6 6*1!/-(!.5 /,.*4 6&D*3 !.7/3!.!=*;5 .*1!/03 .2/0>2 !. !3 -/43.(0-.*1 A!.2 >(*&.-&(* I37*-!&;;5 !4 !.3=*(3!,!-&.!/4 5 .2* /6&43!. A&3 60-2

7(!Q*1 &41 6 /(* .2&4 /4-* !6!.&.*1 &3 <5 =&((/ /, .&Q &41 &;*(!&3 ;&--43 =&;0&<;* -/;;*-.!/4 /, (07/4 !. .*3.!F ,!*3 .2* *3.** 6 !4 A2!-2 !. A&3 2*;1 <5 .2* ;*&(4*1 /, /;1

8@g " + (**D 3-0;7F ./(/, .2* 3-2//;/, 2/1*3 &41K/!4.&0.2/(A!.2 2!3 -/04.(56&4 &0(!3-03 /, .2* -*;*F <(&.*1 >(/07 /, !(-* # 6/4> /.2*(&(.!3.3 /, .2* 4&6* .2* A/(.2!*3. /, 6*4.!/4 !3 " (" /, .2* $3. -*4.0(5 " (/6 2!3 2&41!3 .2* *(-..;*3 4/A /4;5 &./(3/ 7(*3*(=*1 !4 .2* *;=*F 1*(* &. /6*

8 g " , 1 !4 &6725;!& (**D 6&.2*6&.!-!&4 4&6*1 H .2* */6*F .*(I A2/ ;!=*1 &. *(>&6 03 &41 ;*0&41(!& !4 .2* $3. -*4.0(5 &41 A(/.* & A/(D /4 /4!- *-.!/43 !4 *!>2. </!D3 /, A2!-2 A* 2&=* /4;5 .2* ,!(3. ,/0(!4 .2* /(!>!4&; .2* ,!, .2 3!0.2 &41 3*=*4.2 !4 &4 (&<!- .(&43F ;&.!/4 &41 .2* *!>2.2 !4 *0.(&-.3 2* 6*.2/1 2/ ,/;;/A*1 !3 .2&.3.!;; !4 03*

8C9 " + : " !4 &77&1/-!& .2* 6/3. -*;*<(&.*1 /, .2* */" 5.2&>/F (*&43 ;!=*1 &</0. .2* 6!11;* /, .2* 3. -*4F .0(5 <5 &3*=*(*;5 &3-*.!- ;!,* /4 .2* 3077/3*1 7(!4-!7;*3 /, 5.2&> (&3 &41 <5 7(*.*41*1 6!(&-;*3 2* /<.&!4*1 30-2 &2/;1 /4 .2* 60;.!.01* .2&. 2* A&3 A/(32!77*1 &3 &>/1 &41 3*. 07 &3 &(!=&;./ 2(!3. 2* &--/04./, 2!3 ;!,* <5 .2* *;1*(2!;/3.(.03 !3 6/(* (/6&4-* .2&4 2!3./(5 &41 /,,*(3 ;!..;* ./<0!;1 07/4 &=!4> (*-*!=*1 2!3 72!;/3/72!-&;*10-&.!/4 &41 ;!=*1 !4 .2* .*67;* /, 3-;`7!03 &. ;>3* .!;; 2!3 .A*4F .!*.2 5*&(2* 1!=!1*1 2!3 7&.(!6/45 &6/4> .2* 7//(&41 (/&6*1 &;; /=*(.2* A/(;1 2* A&3 *=*4 3&!1./ 2&=* (*&-2*1 41!& &41 .2* 3/0(-*3 /, .2* !;* A!-* 2* ;!=*1 &. /6* ,!(3. 041*(*/(.!;;.2* *070;3!/4 /, .2* 72!;/3/72*(3 &41 &>&!4 !4 /6!.!&4 3 (*!>4 A2*4 2* 2&1 ./ &43A*(& -2&(>* /, -/437!(!4>&>&!43. .2* *67*(/(60>>;*1 /0. /, /6* 10(!4> 2!3 .(!&; 2* -/4.!40*1 2!3 ;!,* &3 & A&41*(!4> 7(*&-27(/, 6/(&;3 &41 A/(D*(/, 6&(=*;3 ,/(3/6 *5*&(3 ;/4>*(&41 !3 3&!1 ./ 2&=* 1!*1 &. & >(*&.*&>* 6&3.*(/, & 3-2//;& 72>343 , 2!3 &;;*>*1 A(!.!4>3 *!>2.",!=* ;*..*(3 2&=* &;/4* 30(=!=*1

8V9 K7/ ,/6 3 30 6&6*1 5 #H (30(;59 (**D 3-2/;&(/! ;*0&41(!& A2*(* 2* 2&1 (*-*!=*1 2!3 *10-&.!/4 &41 A2*(* 2* *41*1 2!3 1&53 & 6*6<*(/, .2* 03*0 6 &,.*(2&=!4>;&</0(*1 &3 & .*&-2*(&. /6* 041*(4./4!403 !0,, &</0. $CN * !3 .2* ,&.2*(/, -!*4.!,!- (&6" 6&(2&=!4><**4 .2* ,!(3. ./ (*10-* !. /

353.*6&.!- ,/(6 !3 *0.B. A/(D3 &(*.; .(*&.!3*3 /4 (/4/043 1=*(<3B /4K04-F .!/43 &41 .2* 54.&0 /, .2* 7BA.3 /, 37**-2 !4 ,/0(</!D3 * A&3 ,/;;/A*1 *37*-!&;;5 <5 .2* &.!4 >(&66&(!&43 &</=* &;; <5 (!3-!&4 !3 3/4 *(/(1!&403 &--/4,7;!32*1 *=*4 6/(* .2&4 2* 1!1

8"g " ((/, ;*0&41(!& !3 7(*-!3* 1&. * !3 !6D4/A4 * A&3" &0.2/(/, &4 *0.&4. *0!-/4 /, /6*(!- ;/33*3 <&3*1 /4 7!/43 ;/3. >;/33&(!&; A(!.!4>3

8Ug " "1 + : .2* 2*(/ /, & (**D (/6&4-* 84/A ;/3.9 -/67/3*1 !4 3!& !4/(!4 .2* (1 -*4.0(5 0 .2* 6/1*;/.2* 9 (": /,] 0 7;! 4 # @9 * 2&=* & ,(** &.!4 =*(3!/4 6&1* <5 & 2(!3.!&4 &</0. .2* ".2 -*4.0!B 7(/<&<;5 !4 .&;5 A2!-2 A&3 60-2 (*&1 !4 .2* !11;* >*3 &41 .(&43;&.*1 !4./ 4>;/" &0/4 4>;!32 (*4-2 .&;!&4 !11;* (**D &41 *(6&4 !4 7(/3* &41 =*(3* .3 6&.*(!&;3 &(* 03*1 !4 .2* 73*01/" 2&D" 37*&(!&4 1(&6& /, , ? @ & ' M D D 7/((&0;3 71.2 13!3 8 &. $ " 2* &-. /,7;&-!4> & 206&4 <*!4> &6/4> .2* >/13B /, A2!-2 .2* (**D3 2&=* &4 !43.&4-* &3 *&(;5 &3 /6*(<0./4;5 !4 .2* 3!4>;* -&3* /, *0- .2 & 2* /;1*3. 4/.!/4 A&3 .2&. /, & </1!;5 (*6/=&;" .2*4 &(/3* .2* !1*& /, .2* 6/(.&; *;*6*4. <*!4> 70(>*1 &A&5 <5 ,!(* &3 !4 .2* -&3* /, *(-;*3 2*(* &3 & D!41 /, 1*!,!-&.!/4 A2!-2 -/43!3.*1 !4 .2 1*-(**!4> /, 2*(/!-2/4/0(3 ./ 1!3.!4>0!32*1 6*4 &,.*(1*&.2 A2!-2 A&3 1/4* ,(/6 .2* .!6* /, .2* *;/7/44*3!&4 &(/4A&(13 *=*4 !4 .2* -&3* / ;!=!4> 6*4 # / - 2* 30--*33/(3 /, ;*0&41*(.2* (*&. </.2 .2* *;*0-;13* &41 3.!;; 6/(* .2* ./;*6!*3 -&03*1 .2* 63*;=*3 ./ <* A/(32!77*1 &3 >/13 , .2* /6&43 A2/3* ;*>*41 ./;1 /, .2* .(&43;&.!/4 /, K 4*&3 &41 /6.!;03 !4./a 2*&=*4 &*3&(A&3 .2* ,!(3. A2/ -;&!6*1 1!=!4* 2/4/0(3 !, 4/. <5 <0!;1!4> .*67;*3 ./ 2!63*;, 5*. <5 3*..!4> 2!3 3.&.0* &6/4> .2* >/13 !4 *=*(5 3&4-.0&(5 &. /6* &41 !4 .2* *67!(* &41 <5 2&=!4> &37*-!&; ,;&6*4 &33!>4*1 ./ 2!6 2* <*;!*, !4 2!3 1!=!4!.5 A&3 -/4,!(6*1 <5 .2* -/6*. .2&. 32/4* 3*=*(&; 6/4.23 &,.*(2!3 1*&.2 &3 ;/4> &3 2!3 ,04*(&; >&6*3 ;&3.*1 &41 041*(.2* .(!06=!(&.* 2* A&3 ,/(6&;;5!43.&.;*1 &6/4> .2* 1*!.!*3 / , /6* &3 5 <5 & 1*-(**/, .2* 3*4&.* &41 7*/7;* !3 &1/7"" .*1 3/4 &41 30--*33/(-.&=!&4 7*(3!3.*4.;5" 1*-;!4*1 &45 /,,*(/, 70<;!-A/(32!7 <0. 2* &--*7.*1 .2* .!.;* /, 1 8.2* -/43*"B -(&.*19 &41 &;;/A*1 2!3 7*(3/4 ./ <* &1/(*1

!4 .2 7(/=!4-*3 4 2!3 1*&.2 .2 3*4&.
1*-(**1 1!=!4 2/4/0(3 ./ 2!6 041*(.2
.!.;/,5 1 .2 *(*-.!/4/,&
.*67;*.2 ,/041!4>/,37*-!&;>&67 3 &41
.2 *3.&<;!3261*4./,&7*-0;!&(7(!*3.2//1
,.*(.2!3 &1661331/4./.2 4067<*(/,.2
5 &3 .2 1*!,!*1 *67*(/(3 A*(*-&;;*1
<*-/6*3 &7(*(/>&.!=* /, .2 !67*(!&;
1!>4!.5 .!3 2/A*=*(;*,.1*7*41*4./4
&(*3/;0.!/4/,.2 3*4&.* 6/=*1 !4 2/4/0(
/,.2 1*-*&3*1 *67*(/(<5 2!3 30--*33/(
4- !.!3 4/.*=*(5 *67*(/(A2/</<.&!43
!.4/(1/*3 -/43*-(&.!/4!.3*;,&;A&53;*&1
./&7*(6&4*4. A/(32!7 67(*33*3./!/
"A*(* /,.*4 -/43*-(&.*1 ,!(3. 0>03.03
A!,* !=!& &3 5 1 &41 *=*4
/.2*(6*6<*(3/,.2 !67*(!&;2/03*

2*-*(*6/45/, 7/.2*/3!303*1,(/6.2*
.!6* /, 0>03.03 A&3.2* ,/;;/A!4> ,.*(
.2 7&33!4>/,.2 3*4&.*3 1*-(** & A&0*4
!6&>* /,.2 1*&1 A2/3* </15 ;&5 2!11*4
K*;/A &A&3 *02!<!.*1 ,/(3*=*4 1&53 /4 &4
!=/(5<*1/,3.&.*!4.2* 7&;&-*-/=*(*1A!.2
>/;1"*6<(/!1*(*1 -/=*(;*.3" .2*4 .2* <!*(
A&3</(4* <5 D4!>2.3 &41 3*4&./(3 &6!13.&
<(!;;!&4.(*.!40* 1/A4.2* !& &-(& ./.2*
M&4-!*4. /(06 A2*(* .2* ,04*(&;/(&.!/4
A&3 1*;!=*(*1 &41 .2*4-* ./.2* &6703
&(.!03 A2*(* !. A&3 1*7/3!.*1 !4 .2*
3*-/41 /,.2* ,/0(3./(!*3/,&(!-2;5
1*-/(&.*1 ,04*(&;7!;* /,75(&6!1 32&7*
2*4 .2* 6&>!3.!&.*3 3&-(*1 &41 3*-0;&(
.2* D4!>2.3 ;!,*>0&(1 &41/.2*(3-/4-*(4*1
2&1 7*(,/(6*1 .2* ;&3./4/0(3<5 7/-*3F
3!/43 &41 ;!<&.!/43 .2* 7!;* A&3 3*./4 ,!(*
&41 &3 !. <0(4*1 07 &4 *&>;* 3/&(*1 ,(/6
.2* ./76/3. 3./(*5 !4./ .2* 3D5 & 356</;
/,.2* &3-*41!4>3/0;

77&(!./(2* >*4*(&;4&6* !4 &.!4
,/(&;;70<;!-3*(=&4.3 /, .2* 6&>!3.(&.*3
2*5 &;; 2&1 ./ <* /6&4 -!.!Q*43 &41
A*(* 7&!1&,!0*1 3&;&(5/0./,.2* 70<;!-
.(*&30(5 2/0>2 4/6!4&.*1 <5 .2* (*"
%37*-.!=* /,! -*(3,/(& 5*&(&.&.!6*.2*5
A*(* 030&;;5(*"&77/!4.*1 3/.2&.7(&-.!-F
&;;5.2*!(3!.0&.!/43 A*(* 3*-0(*1 ,/(;!,*
&41 .2*5-/0;1 *=*4 3*;;.2*!(7;&-*3 2*
6/3.!67/(.&4.-;&33*3 /,.2*3* &..*41&4.3
A*(* .2/3* /,

" &2 2*3* A*(* 1!=!1*1 !4./
/,=&(5!4>3.(*4>.2 A2!-2*4K/5*1
-/(7/(&.* (!>2.3 &41 -2/3* ,/(*6*4 ,(/6
.2*!(/A4</15 #$ *# (

77*;;&.!1 2* &.!4.*(6,/(&4&77*&;
./& 6&>!3.(&.* ./ 70.2!3 =*./ /4 .2*
1*-!3!/4/,&4*:0&; /(!4,*(!/(6&>!3.(&.*
203&-/430;-/0;1<* &77*&;*1./&>&!43.
2!3 -/;;*&>0* &41 &;; /.2*(6&>!3.(&.*3
G*0-*7. .2* .(!<04*3<0.& .(!<04* </.2
&>&!43. 2!3 -/;;*&>0*3 &41 &;; 6&>!3.(&.*3
A2&.3/*=*(4/.2*(.2!4> &;./>*.2*(A&3
.2* , / 8> = g041*(.2* *70<;!-&4
&77*&;;(/6&6&>!3.(&.*3 3*4.*4-*./.2*
/7;&3 07(*6* K01>* 0(!4> .2* !6F
7*(!&;7*(!/1.2*.A/7(/-*33*3(04!4./!4*
,/(.2* *67*(/(2*;1 04!.*1 !4 2!3 7*(3/4
</.2.2* 307(*6* K01!-!&;,04-.!/4 &41 .2*
7;*4&(5 7/A*(/,&;;6&>!3.(&.*3 7&(.!-0F
;&(;5.2* .,!<04!-!&4=*./ 3/.2&.&4 &77*&;
./=2!6 A&3 &.!/4-* &4 &41 &
2!3 &77*&;B !4 /0(3*43* /,
.2* A/(1 A&3/4;57*(6!..*1!4!67/(.&4.
-&3*3" !.2&1 ./ <* 6&13 A!.2!4 &32/(.
!6* /,

* THE PONT DU GARD. (*See p.* 47)

(Height of lowest row of arches above the water's edge, 65 ft.; second row above the lowest, 65 ft.; top row above second, 28 ft.; total, 158 ft.)

7/*.!-' !437!(&.!/4' (&.03' 6&4&>*3' 2!3' !4F .(&-.&<;*' 6&.*(!&;' A!.2' -/43!1*(&<;*' .&-.' &41' 1!>4!,!*1' 3!67;!-!.5' 2*' ;&4>0&>*' A2!;*' 4/.' &;A&53' ,(**' ,(/6' 3.!,! 2*33' !3' -2/!-*' &41' .2*' =*(3!,!-&.!/4' -/((*-.' 2*' 7/*6'*4K/5*1'&!2!>2' (*70.*' A!.2'.2*'>*4*(&;' 70<2-'&3'A*;;'&3'A!.2'7/*.3'&41'37*-!&;!3.3'M .203'.2*'>(*&.'&3.(/4/6*(' !77&(-203'A(/.*' &' -/66*4.&(5' /4' !.' !4' ,/0(' </!D3' 2*' /6&43'&;3/'.//D' 7;*&30(*' !4' (*&1!4>' &41' .(&43;&.!4>'!.' 1' !-*(/' &*3&(' *(6&4!-03' &41' =!*403

(<!.*(' 4'0 6 7!(*' *37*-!&;;5'&'K01>*' A2/' 1*-!1*3' &--/(1!4>' ./' *:0!.5' A2!;*' &' " -' 1*-!1*3' &--/(1!4>' ./';&A

(-J1!03'8 (' / ' ' (**D'>(&6F 6&(!&4',' 4.!/-2'A2/'7(/<&<;5',;/0(!32*1' !4'.2*'@41'-*4.0(5' ' *'A&3'.2*'&0.2/(' /,' &' /-.(!4*' /,' --*4.3' !4' @N' </!D3' &4' &<3.(&-.',' &' A/(D'<5'.2*',&6/03' *(/1!&4

(-C3'8 (' ' /4' /,' L*03'<5'.2*' 45672' &;;!3./' &41' &4-*3./(' /,' .2*' (F -&1!&43'A2/'A&3'.(&43;&.*1'./'.2*'3 '<5' L*43'&3' (-.!;('_' &.-2*(' /,' .2*' *&(' # ' "

(-2>61(03'8_';*&1*(' !4',&.*' ' .2*',!(3.' /'1!*9' '30(4&6*'B=*4'./' 72*;.*3'.2*' !4,&4.'3/4'/,' 5-0(>03'D!4>'/,' *6 &'A2/' A&3'D!;;*1'<5'&'34&D*'10(!4>'.2*' 6&(-2'/,' .2*' *=*4' &>&!43.' 2*<*3'& ' .' A&3' >!=*4'2!6'<5'.2*' 3**(' 672!&(&K;3'A2/' ,/(*3&A'.2*' 1*3.(0-.!/4'&A&!.!4>' 2!63*;,' &41' 2!3' -/4,*1*(&.*3' &41' <5'!.' .2*' -2!;1' A&3'!4=/D*1'&.' .2*' *6*&4' &6*3'/(!>!4F &;;5',/041*1'!4'6*6/(5'/,'2!6

(-2*3.(,..03'/,' *;&'!4' !-!;5 ,;/0(!32*1' &</0.' $R' '&41'-/67/3*1'.2*'206/(/03' 1!1&-.!-'7/*6' ('&'O'1 '-2**(9' 3077/3*1'./' 1*3-(!<*' &' >&3.(/4/6!-' ./0(' (/041' .2*' .2*4' D4/A4'A/(;1'A!.2' 7;&5,0;' *-2/*3' /,' /6*(' &41'.2*' 1/>6&.!-' 72!;/3/F 72*(3' 2*' 406*(/03',(&>6*4.3' 1!37;&5' 60-2'.&;*4.'&41'A!.

(-2!;/-203' ' (**D';5(!-' 7/*.'*37*-!F &;;5'*6!4*4.'&3'&'A(!.*(' /,';&67//43' /(4' &.' &(/3'2*'A&3'.2*'3/4'/,' *;*3!-;*3'<5'&' 3;&=*"A/6&4'<0.'A&3'1(!=*4'<5'7/=*(.5'./' >/'A!.2'&' -/;/45'./' 2&3 3' ('U@N'/('UNR' (/6' 2&3/3'2*' A&3'3//4'1(!=*4'<5'A&4.' &41'<5'.2*'*46!.!*3'A2!-2'2!3'04(*3.(&!4*1' 7&33!/4',/(' !4=*-.!=*'2&1'1(&A4'07/4'2!6' *' 3**63'./' 2&=*'(/&6*1'(*3.;*33;5',(/6' 7;&-*'./'7;&-*'04.!;'/4'2!3'(*.0(4'./' &(/3' 2*'A&3'3;&!4'!4',!>2.'<5'.2*' &0!&4' &;/41 3' /4>'&,.*(A&(13'A2*4'.2!3'6&4'=!3!.*1'.2*' *;72!&4'.*67;*.2*'>/1'!3'3&!1'./'2&=*'1(!=*4' 2!6',(/6'2!3'.2(*32/;1'&3.2*'3;&5*(/,'&'3*(F =&4./,'.2*' 03*3'&41'(*,03*1'./'&16!.'2!6' .!;;'2*'2&1'7(/7!.!&.*1'.2*'3/0;'/,' .2*'7/*. '-'

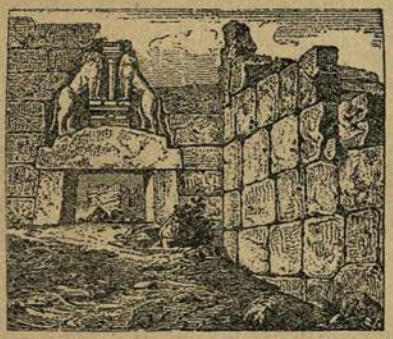
&.'2!3'./6<M &'3./(5'A2!-2'*07(*33*3'.2*' 2!>2'=&;0*'3*.'/4'2!3'K,,.'<5'.2*'&4-!*4.3' A2/'7;&-*1'2!6'/4'&;'=*;'A!.2' /6*(' !41&('&41' /72?-;?3' /(' (-2!;/-203' 2&1'&4'*0.(&/(1!4&(5'7/*.!-&;'>*4!03'A2!-2' *4&<;*1'2!6'./'!4=*4.'&;&(>*' 406<*(' /,' 4*A'6*.(*3'&41'./' 6&4!70;&.*'.2*6'A!.2' .2*' *&3*'/,'&' 6&3.*(' *'<(/0>2.';&6<!-' 7/*.(5'!4'7&(.!-0;&(' ./'&(.!3.!-'7*(,*-.!/4' 2*' 6&45' 6!3,/(.04*3' /,' 2!3' 3./(65';!,*' 2&1'<(*1'!4' 2!3'!((!.&<;*' 4&.0(*' &' 1**7;5'" 3*..;*1'!41!>4&.!/4'A2!-2'!4'7/*63'7*(,*-.' !4',/(6'&41'&;!=*'A!.2',/(-*' &41',0(5' =*4.*1'!.3*;,' !4' <!..*(' 6/-D*(5'*=*4'/,' 2!3',(!*413'&41'!4'6*(-!;*33'!67&(1/4&<;*' &<03*' /,' 2!3',/*3' 0-2'A&3'.2*'*,,*-.'/,' 2!3';&67//43'.2&.' 5-&!2<*3'A2/'2&1',!(3.' 7(/6!3B'&41'.2*4'(*,03*1'2!6'2!3'1&0>2.*(' */<0;*'2&4>*1'2!63*;,' &41'2!3',&6!;5'!4' .2*'1*37&!(*4>*41*(*1'<5'.2*'7/*.3',0(!/03' &..&-D3' ,'2!3'7/*63'A2!-2'A*(*'A(!..*4' !4'.2*' ;1" /4!-'1!&;*-.' &41' .&D*4'<5' /(&-*',/(' 2!3' 6/1*;'!4'2!3' 7/1*3'/4;5'& 406<*(' /,'32/(.',(&>6*4.3'&(*'7(*3*(=*1 (-2!6*1*3' 4*'/,' .2*'>(*&.*3.' 6&.2*F 6&.!-!&43'&41'4&.0(&;' 72!; 3/72*(3' /,' &4.!F :0!.5'</(4' @RU'&.' 5(&-03*' *' ;!=*1' &.' .2*' -/0(.' /,' 2!3' D!436&4' D!4>' ;*(/' &41'A&3'D!;;*1'.' ('@$@9'<5'&' /6&4'3/;1!*(' &.' .2*' .&D!4>'/,' .2*' -!.5'A2!-2' 2*' 2&1' ;&(>*;5'&!1*1'!4'1*,*41!4>'A!.2'2!3'*4>!4*3' ' 2!3'!4=*4.!/43'&41'1!3-/=*(!*3'A*' 4**1' /4;5'3&5'.2&.'2*'&3-*(.&!4*1.2*'(&.!/',' .2*' (&1!03'./' .2*' -!(-06,*(*4-*'&41'.2&.'/,' .2*' -5;!41*(' ./' .2*'372*(*'&41' .2*' 251(/3.&.!-' ;&A'.2&.'&' </15'1!77*1'!4'A&.*(';/3*3'&3' 60-2'A*!>2.'&3'.2&.'/,'.2*'A&.*(' 1!37;&-*1' <5'!.'' .2&.'2*'!4=*4.*1'.2)'70;;*5'.2*'*41F ;*33'3-(*A'&41'.2*'D!41'/,' 7067'-&;;*1'.2*' H'3-(*A'/,' (-2!6*1*3'I'&41'.2&.'2*'-/4F 3.(0-.*1'.2*' 3/"-&;;*1' H'372*(*I'&'3/(.'/,' /((*(5'32/A!4>'.2*'6/.!/43'/,'.2*'2*&=*4;5' </1!*3' ,'2!3'A/(D3'A(!..*4'!4'.2*' /(!-' 1!&;*-.'.2*',/;;/A!4>'&(*'7(*3*(=*1' "' (' (' " ' : " ' "' (' " ' (' ' "' " ' " ' (' "' ' " ' +(' ' 8/(' 3&41"(*-DF /4*(',/(.2*-&;-0;&.!/4',/.2*'*&(.23'3!Q*' !4'>(&!43',/'3&419' "' (' ' ' ' " ' ' 1 : ' &41' "' "1'

(-2!.*-.0(*M 8$9'/,'.2*'6 ' ,'.2*' *&(;!*3.'*,,/(.3'/,'.2*' (**D3!4'&(-2!.*-.0(*' A*'2&=*'*=!1*4-*'!4'.2*'3/"-&;;*1'$: "' M ' 30((/041!4>'.2*'-&3.;*3'/,'D!4>3'!4' .2*' *(/!-' >*'&.' !(543' (>/3' 5-*4&*' 8,!>'$9'&41'*;3*A2*(*' 2*5'&(*'/,'*4/(6/03' .2!-D4*33'3/6*' <*!4>'-/43.(0-.*1'/,'(01*' -/;/33&;' <;/-D3' A2/3*'>&73' &(*' ,!;;*1' 07

with smaller stones; while others are built of stones more or less carefully hewn, their

(1) WALL OF POLYGONAL STONES, MYCENÆ.

interstices exactly fitting into each other. Gradually they begin to show an approxi-

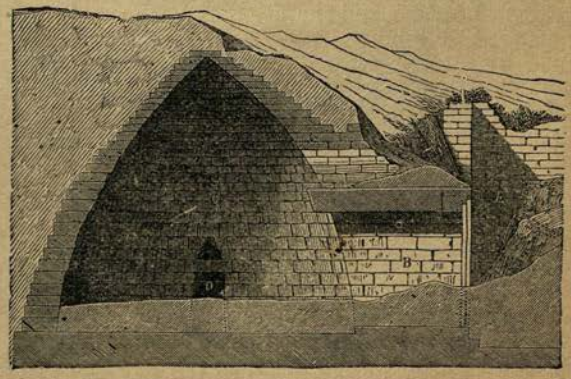


(2) THE LION-GATE, MYCENÆ.

mation to buildings with rectangular blocks. The gates let into these walls are closed at the top either by the courses of stone jutting over from each side till they touch, or by a long straight block laid over the two leaning side-posts. Of the latter kind is the famous *Lion-gate at Mycenæ*, so-called from the group of two lions standing with their forefeet on the broad pedestal of a pillar that tapers rapidly downwards, and remarkable as the oldest specimen of Greek sculpture. The sculpture is carved on a large triangular slab that fills an opening left in the wall to lighten the weight on the lintel (fig. 2).

Among the most striking relics of this primitive age are the so-called *Thēsauroi*, or treasuries (now regarded as tombs) of ancient dynasties the most considerable being the *Treasure-house of Atreus* at Mycenæ. The usual form of these buildings is that of a circular chamber vaulted over by the horizontal courses approaching from all sides till they meet. Thus the vault is not a true arch (fig. 3). The interior seems originally to have been covered with metal plates, thus agreeing with Homer's descriptions of metal as a favourite ornament of princely houses. An open-air building preserved from that age is the supposed *Temple of Hēra* on Mount Ocha (now Hagios Elias) in Eubœa, a rectangle built of regular square blocks, with walls more than a yard thick, two small windows, and a door with leaning posts and a huge lintel in the southern side-wall. The sloping roof is of hewn flagstones resting on the thickness of the wall and overlapping each other; but the centre is left open as in the hypæthral temples of a later time.

From the simple shape of a rectangular house shut in by blank walls we gradually advance to finer and richer forms, formed especially by the introduction of columns detached from the wall and serving to support the roof and ceiling. Even in Homer we find columns in the palaces to support the halls that surround the court-yard, and the ceiling of the banqueting-room. The construction of columns (*see* ARCHITECTURE, ORDERS OF) received its artistic development first from the *Dorians* after their migration into the Peloponnēsus about 1000 B.C., next from the *Ionians*, and from each in a form suitable to their several characters. If the simple serious character of the Dorians speaks in the Doric Order, no less does the lighter, nimbler, and more



(3) * "TREASURE HOUSE" OF ATREUS, MYCENÆ.

A wall of entrance-passage (drŏmŏs), 30 ft. long. *B* entrance, 19½ ft. high. *C* large chamber, 50 ft. high. *D* entrance (9 ft. high) to small chamber.

showy genius of the Ionian race come out in the Order named after them. By about 650 B.C. the Ionic style was flourishing side by side with the Doric.

As it was in the construction of *Temples* (*q.v.*) that architecture had developed her favourite forms, all other public buildings borrowed their artistic character from the temple. The structure and furniture of private houses (*see* HOUSE), were, during the best days of Greece, kept down to the simplest forms. About 600 B.C., in the Greek islands and on the coast of Asia Minor, we come across the first architects known to us by name. It was then that *Rhœcus* and *Theodōrus* of Samos, celebrated likewise as inventors of casting in bronze, built the great temple of Hēra in that island, while *Chersiphrōn* of Cnōsus in Crete, with his son *Metāgĕnēs*, began the temple of Artĕmis (Diana) at Ephĕsus, one of the seven wonders of the world, which was not finished till 120 years after. In Greece Proper a vast temple to Zeus was begun at Athens in the 6th century B.C. (*see* OLYMPIEUM), and two more at Delphi and Olympia, one by the Corinthian *Spinthărus*, the other by the Elean *Libōn*. Here, and in the Western colonies the Doric style still predominated everywhere. Among the chief remains of this period, in addition to many ruined temples in Sicily (especially at Selīnūs and Agrigentum), should be mentioned the Temple of Poseidōn at Pæstum (Poseidōnia) in South Italy, one of the best preserved and most beautiful relics of antiquity (figs. 4, 5). The patriotic fervour of the Persian Wars created a general expansion of Greek life, in which Architecture and the sister art of Sculpture were not slow to take a part. In these departments, as in the whole onward movement, a central position was taken by Athens, whose leading statesmen, Cīmōn and Perĭclēs, lavished the great resources of the State at once in strengthening and beautifying the city. During this period arose a group of masterpieces that still astonish us in their ruins, some in the forms of a softened Doric, others in the Ionic style, which had now found its way into Attica, and was here fostered into nobler shapes. The Doric order is represented by the Temple of Theseus (fig. 6), the Propylæa built by *Mnēsĭclēs*, the Parthĕnōn, a joint production of *Ictīnus* and *Callicrătēs*; while the Erechthēum is the most brilliant creation of the Ionic order in Attica. Of the influence of Attic Architecture on the rest of Greece we have proof, especially in the Temple of Apollo at Bassæ in South-Western Arcadia, built from the design of the above-mentioned Ictinus.

(4) * EXTERIOR OF TEMPLE OF POSEIDON AT PÆSTUM (79 ft. × 195 ft.).

The progress of the Drama to its perfection in this period led to a corresponding improvement in the *building of Theatres* (*q.v.*). A stone theatre was begun at Athens even before the Persian Wars; and the Odēum of Pericles served similar purposes. How soon the highest results were achieved in this department, when once the fundamental forms had thus been laid down in outline at Athens, is shown by the theatre at Epidaurus, a work of *Polyclītus*, unsurpassed, as the ancients testify, by any later theatres in harmony and beauty. Another was built at Syracuse, before B.C. 420. Nor is it only in the erection of single buildings that the great advance then made by architecture shows itself. In laying out new towns, or parts of towns, men began to proceed on artistic principles, an innovation due to the sophist *Hippodāmus* of Milētus.

In the 4th century B.C., owing to the change wrought in the Greek mind by the Peloponnesian War, in place of the pure and even tone of the preceding period, a desire for effect became more and more general, both in architecture and sculpture. The sober Doric style fell into abeyance and gave way to the Ionic, by the side of which a new Order, the *Corinthian*, said to have been invented by the sculptor *Callimăchus*, with its more gorgeous decorations, became increasingly fashionable. In the first half of the 4th century arose what the ancients considered the largest and grandest temple in the Peloponnesus, that of Athēna at Tĕgĕa, a work of the sculptor and architect *Scŏpās*. During the middle of the century, another of the "seven wonders," the splendid tomb of Mausōlus at Halicarnassus was constructed (*see* MAUSOLEUM). Many magnificent temples arose in that time. In Asia Minor, the temple at Ephesus, burnt down by Herostrătus, was rebuilt by Alexander's bold architect *Deinocrătēs*. In the islands the ruins of the temple of Athena at Priēnē, of Apollo at Milētus, of Dionȳsus at Teos, and others, even to this day offer a brilliant testimony to their former magnificence. Among Athenian buildings of that age the Monument of Lysicrătēs (*q.v.*) is conspicuous for its graceful elegance and elaborate development of the Corinthian style. In the succeeding age Greek architecture shows its finest achievements in the building of theatres, especially those of Asiatic towns, in the gorgeous palaces of newly-built royal capitals, and in general in the luxurious completeness of private buildings. As an important specimen of the last age of Attic architecture may also be mentioned the Tower of the Winds (*q.v.*) at Athens.

(5) * INTERIOR OF TEMPLE OF POSEIDON, PÆSTUM; *see* p. 51.

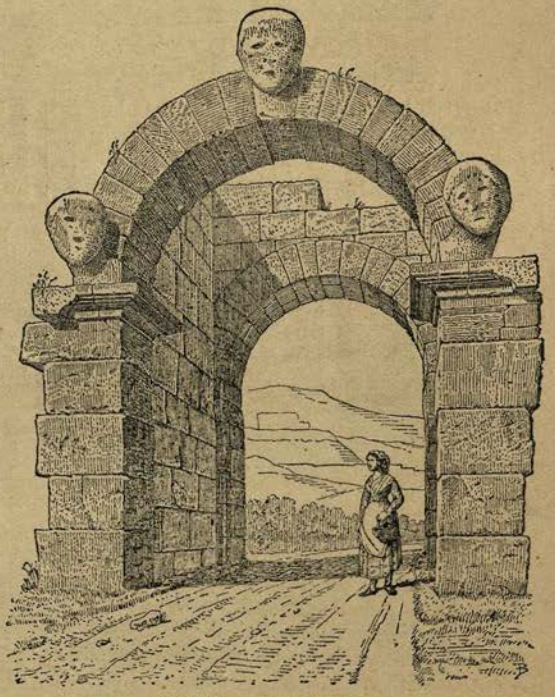
(2) *Architecture of the Etruscans and*

Romans. In architecture, as well as sculpture, the Romans were long under the influence of the *Etruscans*, who, though denied the gift of rising to the ideal, united wonderful activity and inventiveness with a passion for covering their buildings with rich ornamental carving. None of their temples have survived, for they built all the upper parts of wood; but many proofs of their activity in building remain, surviving from various ages, in the shape of *Tombs* and *Walls*. The latter clearly show how they progressed from piling up polygonal blocks in Cyclopean style to regular courses of squared stone. Here and there a building still shows that the Etruscans originally made vaultings by letting horizontal courses jut over, as in the ancient Greek *thēsauroi* above mentioned; on the other hand, some very old gateways, as at Volterra (fig. 7) and Perugia, exhibit the true *Arch* of wedge-shaped stones, the invention of which is probably due to Etruscan ingenuity, and from the introduction of which a new and magnificent development of architecture takes its rise. The most imposing monument of ancient Italian arch-building is to be seen in the sewers of Rome laid down in the 6th century B.C. (*See* CLOACA MAXIMA.)

When all other traces of Etruscan influence were being swept away at Rome by the intrusion of Greek forms of art, especially after the Conquest of Greece in the middle of the 2nd century B.C., the Roman architects kept alive in full vigour the Etruscan method of building the arch, which they developed and completed by the inventions of the *Cross-Arch* (or groined vault) and the *Dome*. With the Arch, which admits of a bolder and more varied management of spaces, the Romans combined, as a decorative element, the columns of the Greek Orders. Among these their growing love of pomp gave the preference more and more to the Corinthian, adding to it afterwards a still more gorgeous embellishment in what is called the *Roman* or *Composite* capital (*see* ARCHITECTURE, ORDERS OF). Another service rendered by the Romans was the introduction of building in brick (*see* POTTERY).

A more vigorous advance in Roman architecture dates from the opening of the 3rd century B.C., when they began making great military roads and aqueducts. In the first half of the 2nd century they built, on Greek models, the first *Basĭlĭca*, which, besides its practical utility served to embellish the Forum. Soon after the middle of the century, appeared the first of their more ambitious temples in the Greek style. There is simple grandeur in the ruins of the *Tăbŭlārĭum*, or Record-Office, built B.C. 78

(6) * "THESEUM" (46 ft. × 105 ft.); *see* p. 51.



(7) * GATE OF VOLTERRA.
(After Canina.)

on the slope of the Capitol next the Forum. These are among the few remains of Roman republican architecture; but in the last decades of the Republic simplicity gradually disappeared, and men were eager to display

aided by his son-in-law *Agrippa*, a man who understood building, not only completed his uncle's plans, but added many magnificent structures—the *Forum Augusti* with its Temple to *Mars Ultor*, the Theatre of Mar-

(8) * EXTERIOR OF COLOSSEUM; *see* p. 55.
(Cooke, *Views of the Coliseum*, pl. 13.)

a princely pomp in public and private buildings; witness the first stone theatre erected by Pompey as early as 55 B.C. Then all that went before was eclipsed by the vast works undertaken by *Cæsar*, the Theatre,

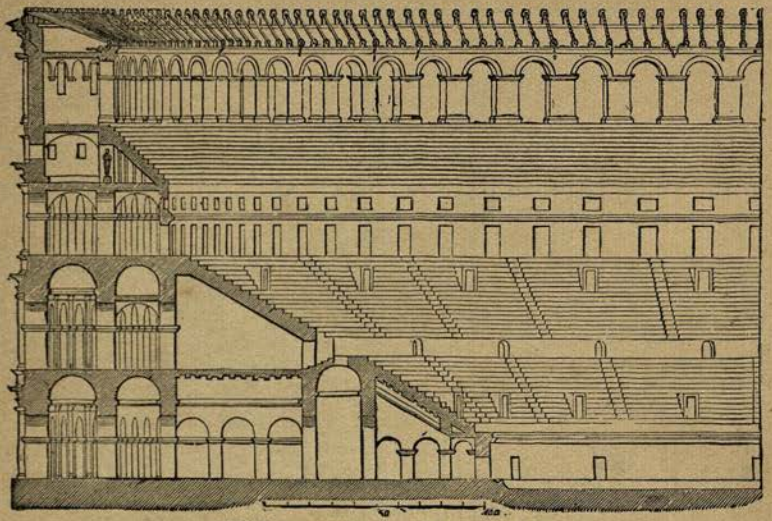
cellus with its Portico of Octavia, the *Mausoleum*, and others. Augustus could fairly boast that "having found Rome a city of brick, he left it a city of marble." The grandest monument of that age, and one of the loftiest

(9) * INTERIOR OF COLOSSEUM ; *see* p. 55.
(Cooke, *Views of the Coliseum*, pl. 4.)

Amphitheatre, Circus, *Basilica Iulia*, *Forum Cæsăris* with its Temple to Venus Genetrix. These were finished by *Augustus*, under whom Roman architecture seems to have reached its culminating point. Augustus,

creations of Roman art in general, is the *Panthĕon* (*q.v.*) built by Agrippa, adjacent to, but not connected with, his *Thermæ*, the first of the many works of that kind in Rome. A still more splendid aspect was imparted

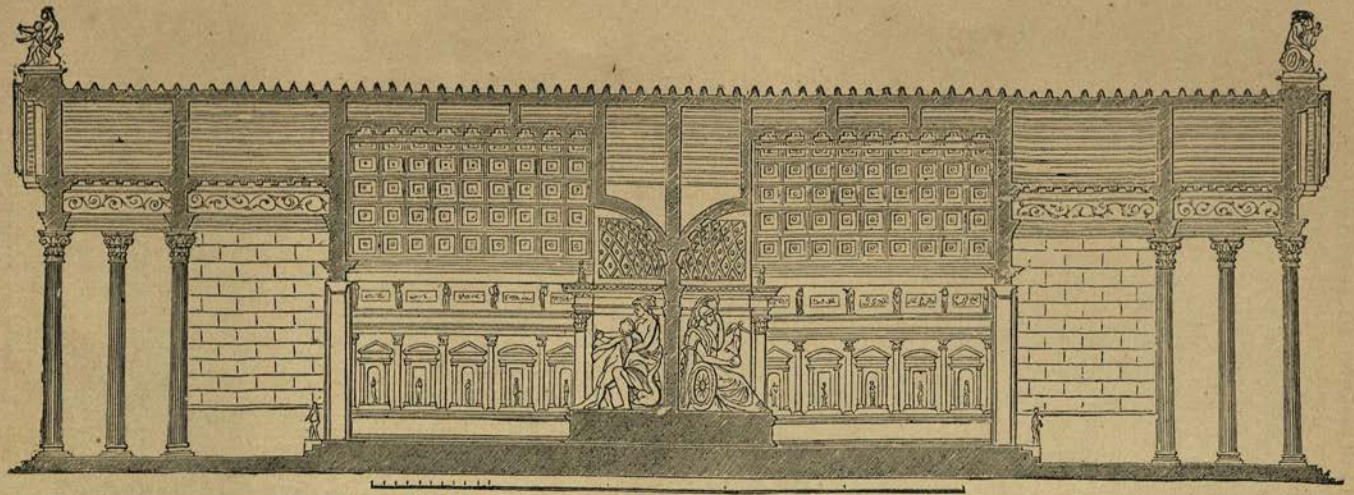
to the city by the rebuilding of the Old Town burnt down in Nero's fire, and by the "Golden House" of Nero, a gorgeous pile, the like of which was never seen before, but which was destroyed on the violent death of its creator. Of the luxurious grandeur of private buildings we have ocular proof in the dwelling-houses of Pompeii, a paltry country-town in comparison with Rome.



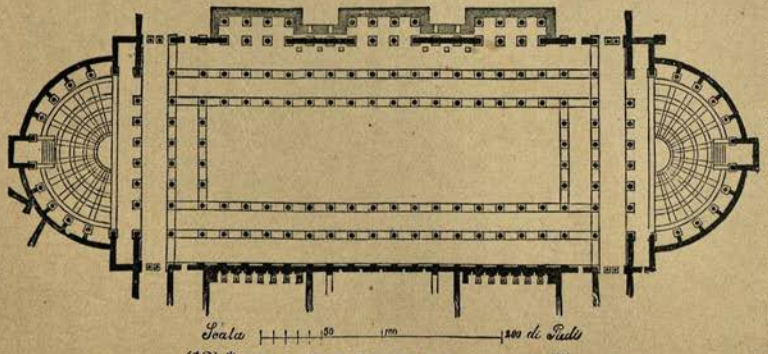
(10) * CROSS-SECTION OF COLOSSEUM.
(After Fontana and Hirt.)

(11) * ARCH OF TITUS.

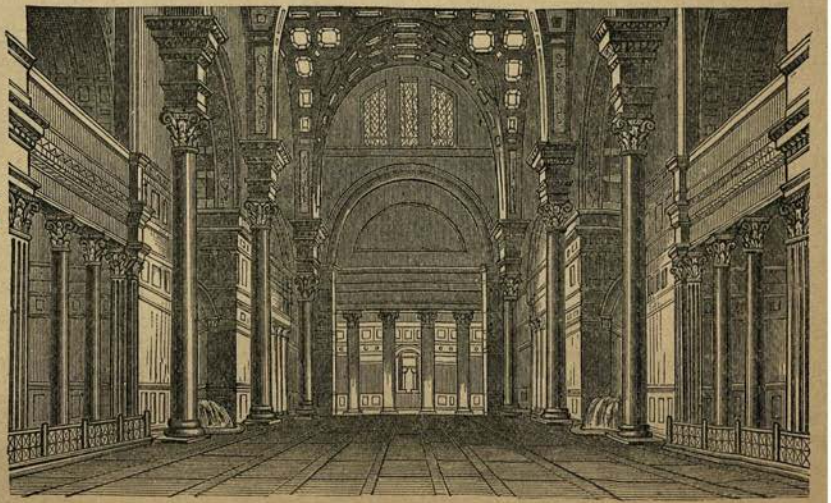
The progress made under the Flavian emperors is evidenced by *Vespasian's* Amphitheatre (*q.v.*) known as the *Colossēum* (figs. 8, 9, 10), the mightiest Roman ruin in the world, by the ruined *Thermæ*, or Baths, of *Titus*, and by his Triumphal Arch (*q.v.*), the oldest specimen extant in Rome of this class of monument, itself a creation of the Roman mind (fig. 11). But all previous buildings were surpassed in size and splendour when Trajan's architect Apollodōrus of Damascus raised the *Forum Trāiānum* with its huge *Basilica Ulpia* (fig. 12) and the still surviving Column of Trajan. No less extensive were the works of Hadrian, who, besides adorning Athens with many magnificent buildings, bequeathed to Rome a Temple of Venus and Roma, the most colossal of all Roman temples (fig. 13), and his own Mausoleum (*q.v.*), the core of which is preserved in the Castle of St. Angelo. While the works of the Antonines already show a gradual decline in architectural feeling, the Triumphal Arch of Severus ushers in the period of decay that set in with the 3rd century. In this closing period of Roman rule the buildings grow more and more gigantic, witness the Baths of Caracalla (fig. 14), those of Diocletian, with his palace at Salona (three miles from Spalatro) in Dalmatia, and the Basilica of Constantine breathing the last feeble gasp of ancient life. But outside of Rome and Italy, in every part of the enormous empire to its utmost barbarian borders,



(13) * SECTION OF TEMPLE OF VENUS AND ROMA; *see* p. 55.
(Restoration, after Canina.)



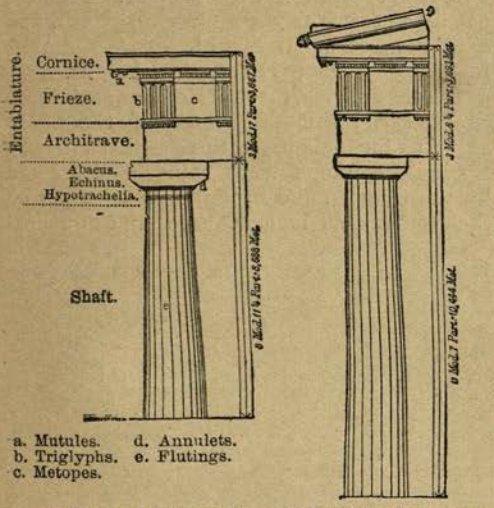
(12) * PLAN OF BASILICA ULPIA; *see* p. 55.
(After Canina.)



(14) * INTERIOR OF THERMÆ OF CARACALLA (RESTORED); *see* p. 55.

bridges, numberless remains of roads and aqueducts and viaducts, ramparts and gateways, palaces, villas, market-places and judgment-halls, baths, theatres, amphitheatres and temples, attest the versatility, majesty, and solidity of Roman architecture, most of whose creations only the rudest shocks have hitherto been able to destroy.

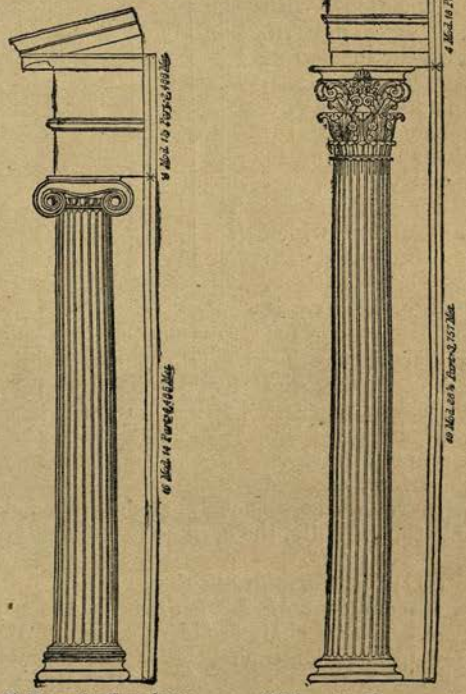
Architecture, Orders of. In Greek architecture there were three orders of columns: the Doric, Ionic, and Corinthian. (I) *Doric*: Figures 1 and 2 give instances of the Doric style from the temple at Pæstum and the Parthĕnōn at Athens. The Doric column consists (*a*) of the shaft, which increases in diameter almost invisibly up to about one-quarter of its height, and diminishes slightly after that point. It has no base, but rests immediately on the stylobate. It is surrounded with semi-circular flutings, meeting each other at a sharp angle. These were chiselled with a cedar-wood tool after the separate drums had been put together. (*b*) The capital (Lat. *capĭtŭlum*). This consists of three parts, (*a*) the *hypŏtrăchēlĭŏn*, or neck of the column, a continuation of the shaft, but separated by an indentation from the other drums. It is wider at the top than at the bottom, and is generally ornamented with several parallel and horizontal rings. (*b*) The *ĕchīnus*, a circular moulding or cushion, which widens greatly towards the top. (*c*) The *abax* or *ābăcus*, a square slab supporting the architrave or *epistȳlĭon*. The height of the shaft is usually $5\frac{1}{2}$ times, the distance between the columns $1\frac{1}{2}$ times the diameter of the base of the column. The architrave is a quadrangular beam of stone, reaching from pillar to pillar. On this again rests the frieze, *zōphŏros*, so called from the metopes which are adorned with sculptures in relief. These metopes are square spaces between the triglyphs: the triglyphs are surfaces cut into three concave grooves, two whole grooves in the centre, and two half grooves at the sides. One is placed over each pillar, and one between each pair of pillars. The entablature is completed by a projecting cornice, a slab crowned with a simple heading-course, the lower surface of which is ornamented with sloping corbels (Gk. *stăgŏnĕs*, Lat. *mūtŭlī*).



a. Mutules. d. Annulets.
b. Triglyphs. e. Flutings.
c. Metopes.

(1) From the Temple of Poseidōn, Pæstum. (2) From the Parthenon, Athens.

DORIC ORDER.



(3) From the Temple on the Ilissus, Athens.

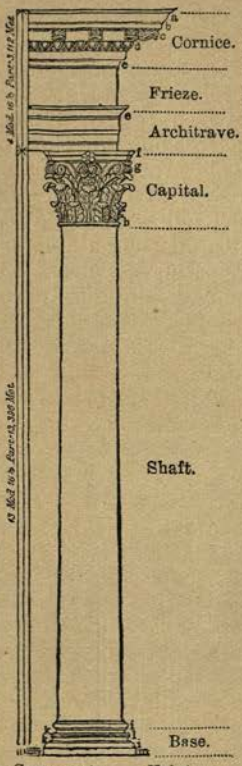
IONIC ORDER.

(4) From the Monument of Lysicrates, Athens.

CORINTHIAN ORDER.

(II) *Ionic Columns.* An instance is given in fig. 3 from the temple on the Ilissus at Athens. These are loftier than the Doric, their height being $8\frac{1}{2}$–$9\frac{1}{2}$ times the diameter of the lower part. The enlargement of the lower

part is also less than in the Doric columns, the distance between each column greater (two diameters), the flutings (generally 24 in number) deeper, and separated by small flat surfaces. The Ionic column has a base, consisting of a square slab (*plinthŏs*), and several cushion-like supports separated by grooves. The capital, again, is more artistically developed. The neck, instead of flutings, has five leaves worked in relief. The *echinus* is very small and ornamented with an egg pattern. Over it, instead of the *abacus*, is a four-cornered cushion ending before and behind in spiral volutes, supporting a narrow square slab, which is also adorned with an egg pattern. The architrave is divided into three bands, projecting one above the other, and upon it rises, in an uninterrupted surface, the frieze, adorned with reliefs continuously along its whole length. Finally, the cornice is composed of different parts.



a. Cyma recta. g. Volutes.
b. Corona. h. Astragal.
c. Modillions. i. Torus.
d. Ovolo. k. Trochilus.
e. Cymation. l. Quadra.
f. Abacus. m. Plinth.

(5) From the Pantheon, Rome.

CORINTHIAN ORDER.

(III) *The Corinthian column* (fig. 4, from the monument of Lysĭcrătēs, at Athens). The base and shaft are identical with the Ionic, but the capital takes the form of an open *călix* formed of acanthus leaves. Above this is another set of leaves, from between which grow stalks with small leaves, rounded into the form of volutes. On this rests a small *ăbăcus* widening towards the top, and on this again the entablature, which is borrowed from the Ionic order. On the human figures employed instead of columns to support the entablature, *see* ATLAS, CANEPHORI, CARYATIDES.

The Romans adopted the Greek styles of column, but not always in their pure form. They were fondest of the Corinthian, which they laboured to enrich with new and often excessive ornamentation. For instance, they crowned the Corinthian capital with the Ionic, thus forming what is called the Roman or composite capital.

The style known as Tuscan is a degenerate form of the Doric. The Tuscan column has a smooth shaft, in height = 7 diameters of the lower part, and tapering up to three-quarters of its lower dimensions. Its base consists of two parts, a circular plinth, and a cushion of equal height. The capital is formed of three parts of equal height.

In other styles, too, the Romans sometimes adopted the smooth instead of the fluted shaft, as for instance in the Pantheon (fig. 5).

Single columns were sometimes erected by the Greeks, and in imitation of them by the Romans, as memorials to distinguished

(6) * COLUMN OF MARCUS AURELIUS.
(With its surroundings as restored by Canina, *Arch. Rom.* tav. 204.)

persons. A good example is the *Columna Rostrāta*, or column with its shaft adorned with the beaks of ships, in the Roman

/(06 2!3 A&3 3*. 07 !4 -/66*6/(&F .!/4 /, .2* 4&=&; =!-./(5 /, 0!;!03 /=*(.2* &(.2&>!4!&43 8@?$ 9 6/4> .2* -/;0643 A2!-2 30(=!=* .2* 6/3. 6&>4!,!F -*4.!3 .2&./, (&K&4 *(*-.*1!4 .2* /(06 /, (&K&4 ;;,! .(!3*3 /4 &: 0&1(&4" >0;&(7*1!6*4. ./ .2* 2*!>2. /, $@C ,**. " !.3 1!&6*.*(<*;/A !3 &</0. , **. &41 &2..;* ;*33 !4 .2* 077*(7&(. 4 !4.*(!/(37!(&; 3.&!(-&3* /, $RV 3.*73 ;*&13 ./ .2* 3066!. 2* 32&,. ,/(6*1/, .A*4.5".2(** 1(063 /, 6&(<;* !3 &1/(4*1 A!.2 &3*(!*3 /, (*;!*,3 , **. !4-2*3 2!>2 &41 @NN ,**. ;/4>! 4 & 3*(!*3 /, .A*4.5".A/ 37!(&;3 2*5 (*7(*3*4. 3-*4*3 !4 (&K&4 3 &!&4 -&67&!>43 &41 -/4.&!4 @ VNN 206&4 ,!>0(*3 A!.2 &4!6&;3 *4>!4*3 *.- 4 &-5;!41(!-&; 7*1*3.&; &.2* 3066!. 2*(* /4-* 3./!1 & >!;1*1 3.&.0* /, .2* *67*(/(A2!-2 3!4-* .2* 5*&($VRU 2&3 6&1* A&5 ,/(&<(/4Q* ,!>.0"* /, . *.*(3!6!;&(-/;064 !3 .2&./, &(-03 0(*;!03 $@@ ,**. 2!>2 /4 .2* !&QQ& /;/44& !4-* $VRT .2* 3.&.0* /, . &0;2&3 <**4 30<3.!.0.*1 ,/(.2&./, .2* *67*(/(2* (*;!*,3 !4 .A*4.5 37!(&;3 (*7(*3*4.*=*4.3 !4 .2* *67*(/(3 A&(A!.2 .2* &(-/6&44!

(-2!.2 /(!& 4* /, .2* 70<;!-3*(=!-*3 -&;;*1 1 &. .2*43 !. A&3 .2* /<;!F >&.!/4 ./ ,0(4!32 ,/(.2 .2* 3&-(*1 *6<&33!*3 & (./ .2* ,/0(>(*&. 4&.!/4&; ,*3.!=&;3 &;3/ ./ *;72! &41 /.2*(2/;5 7;&-*3 #)

(-2/4 8_ (0;*(9 .2* .2*4!&4 4&6* ,/(.2* 307(*6* &0.2/(!.5 *3.&<;!32*1 /4 .2* &</;!.!/4 /, (/5&;.5 4 .2* 1*&.2 /, .2* ;&3.2!4> /1(03 $N?R .2* 2*&132!7 /, .2* 3.&.* ,/(;!,* A&3 <*3./A*1 /4 2!3 3/4 *1/4 &41 2!3 1*3-*41&4.3 !61*(.2* .!.;* /, (-2/4 4 UV@ .2*!(.*(6 /, /,,!-* A&3 -0. 1/A4 ./ .*4 5*&(3 !4 U$C .2*!(*0-;03!=* 7(!=!;*>* A&3 &</;!32*1 &41 .2* (!>2. ./ 2/;1 .2* /,,!-* .2(/A4 /7*4 ./ &;; .2* 4/<!;!.5 A2!;* !.3 10(&.!/4 A&3 1!6 !4F !32*1 ./ /4* 5*&(" ,!4&;;5 !4 ?R .2* 7/A*(A&3 1!=!1*1 &6/4>4!4* &(-2/43 5 /;/43 ;*>!3;&.!/4 2!3 A*&;.2!*3. -;&33 .2* " 2 " <*-&6* *;!>!<;* ./ .2* /,,!-* &41 <5 (!3.!1*3 &((&4>*6*4. &,.*(.2* *(3!&4 &(3 !. A&3 .2(/A4 /7*4 ./ &;; .2* -!.!Q*43 ;*!3.2 7 3 2&=!4>7(*=!/03;5 !4.2* !4.*(*3.3/, .2* 1*6/-(&-5 30<3.!.0.*1 .2* 1(&A!4> /, ;/.3 ,/(*;*-.!/4 <5 =/.* W /.* /4 7 UN? g 2* 7/;!.!-&; 7/A*(/, .2* /,,!-* 2&=!4>3.*&!1;5 1*-(*&3*1 A!.2 .!6* 3&4D ./ 4/.2!4> A2*4 1*6/-(&-5 A&3 *3.&<;!32*1 !.3 2/;1*(3 2&1 4/ ;/4>* *=*4 .2* (!>2. ./ 1*;!<*(&.*&41 /(!>!4&.* 6/.!/43 .2*!(&-.!/4 <*!4>;!6!.*1 ./ -*(.&!4 7(!*3.;5 &41 K01!-!&; ,04-.!/43 (*;!-3 /, .2*!(/4-* (*B ;7/A*(

2* .!.;*3 &41 10.!*3 /, .2* 3*=*(&; (" -2/!43 &(* &3 , /A3 8$9 2*!(7(*3!1*4. 4&6*1 *672&.!-&;;5 (*,./6 /((" 9 " <*-&03* .2* -!=!; 5*&(A&3 4&6*1 &,.*(2!6 * 2&1 -2&(>* /, .2* (*&. 5 ": .2* +(1 !.2* *6<&3F 3!*3 ./ ,*3.!=&;3 # (.2* 4/6!4&.!/4 /, (1 * &;3/ .2* 7/3!./4 >0&(1!&4 !4 -2!*, &41 .2* 7/A*(./ &77/!4. >0&(1!&43 .2*7(*3!1*4-5!4&;;30!.3&<0. ,&6!;5(!>2.3 830-2 &3 :0*3.!/43 /, 1!=/(-* /(!42*(!.F &4-*9 &41 !4 1!370.*3 &6/4> .2* (1 """""" 8@9 2* (" 8D!4>9 -&;;*1 3/ <*-&03* /4 2!6 1*=/;=*1 -*(.&!4 3&-(*1 (!.*3 !43*7&(&<;5 -/44*-.*1 A!.2 .2* 4&6* /, D!4> * 2&1 .2* -&(* /, .2* ;*03!4!&4 53.*(!*3 8&41 A&3 /<;!>*1 .2*(*,/(* ./ <* &4 !4!.!&.*1 7*(3/49 /, .2* " &41 " (/,>5643.!- /4.*3.3 ./ A2!-2 2* &77/!4.*1 & 307*(!4.*41*4. &41 /, & 406<*(/, &4.!:0&.*1 3&-(!,!-*3 3/6* /, A2!-2 ,*;; ./ .2* 32&(* /, 2! A!,* .2* 8:0**49 &41 ;&3.;5 .2* 7/3!./4 /, 7(*3!1*4. !4 &;; 30!.3 ./0-2!4> (*;!>!/03 ;&A !4-;01!4> .2/3* .(!&;3 ,/(60(1*(.2&. -&6* A!.2!4 .2* K0(!31!*.D&! , ,,!* .9!(& 3""""""8 9 2* (" , " (8;*&1*(!4 A&(9 A&3 /(!>!4&;;5 *4.(03.*1 A!.2 .2* A&("1*7&(.6*4. &41 &3 &* &3 .2* <&..;* /, &(J.2/4 2&1 .2* (!>2. /, =/.!4> A!.2 .2* .*4 >*4*(&;3 &41 .2* /;1 (/5&; 7(!=!;*> /, -/66&41!4> .2* (!>2. A!4> ,.*(A&(13 2* /4;5 2&1 -2&(>* /, .2* 3.&.* 3&-(!,!-*3 /,,*(*1 ./ .2* >/13 /, A&(&41 ./ .2* 32&1* /, &(6 1!03 .2* 70<;!-,04*(&;3 /, .2/3* A2/ ,*;;* !4 A&(&41 .2* &440&; ,*&3.3 !4 2/4/0(/, .2*6 ,!4&;;5 .2* K0(!3F 1!-.!/4 !4 &;; :0*3.!/43 -/4-*(4!4> .2* 7*(3/4&; &41 ,&6!;5 (!>2.3/, (*3!1*4. &;!*43 # &41 3.(&4>*(3 ;;.2!3(*3.*1 /4.2* /;1 &330 67.!/4 .2&./,(*!>4*(6*&.* 4*65 &-2 /, .2*3* .2(**307*(!/((-2/43 2&1.A/ &33*33/(3 -2/3*4 <5 2!63*;, <0. (*37/43!<;* [[8C9 2* -+((8;!.*(&;;5 ;&AF >!=*(39 &16!4!3.*(*1K03.!-* !4 &;; -&3*3 4/. 7*(.&!4!4> ./ .2* 3*4!/((-2/43 /(3/6* /.2*(&0.2/(!.5 (*=!3*1 .2* ;&A3 /4-* & 5*&(&41 307*(!4.*41*1 .2* &77/(.!/4!4> /, 70<;!-* /,,!-*3 <5 ;/. 2* 3*=6"&; (F -2/43*0*(-!3*1 .2*!(K0(!31!-.!/4&.!1!,,*(*4. 37/.3 !4 .2* -! 5 .&; /;* /, .2* /;*6&(-2 &;/4*;&5 /0.3!1* .2* A&;;3 0.!*3 -/66/4 ./ &;;* 4!4* A*(*" .2* 5*&(;5 &77/!4.6*4. <5 ;/. /, .2* &1 .2* -2/!-* /, 067!(*3 !4 .2* &4&.2*43*& .2* 2/;1!4> /, *;*-.!/43 /, .2* >*4*(&;3 &41 /.2*(6!;!.&(5 /,,!-*(3 K0(!31!-.!/4 !4 .2* -&3* /, /,,!-!&;3

3037*41*1 /(1*7/3*1 <5 .2* 7*/7;* &41 ;&..*(;5 *=*4 !4 30!.3 A2!-2 2&1 7(*=!/03;5 <**4 30<K*-.3 ./ .2* " # &!/ ! ! g , .2*5 2&1 1!3-2&(>*1 .2*!(/,,!-* A!.2/0. <;&6*3 .2*5 *4.*(*1 .2* (* 7&>03 &3 6*6<*(3 ,/(;!,* 2* /,,!-* / , (-2/4 ;&3.*1 *=*4 041*(.2* /6&4 (0;* (-25.&3 /, &(*4.06 !3.!4>0!32*1 &3 &>*4*(&;3.&.*36&4 &41 6&.2*6&.!-!&4 &;*&1!4> (*7(*3*4.&.!=* /, .2* 5.2&>/(*&4 72!;/3/725 A2/ ,;/0(!32*1 &</0. C8]9 ?V 4 0 & 0 &1$ &#((-.!443 8 (" ((**D *7!- 7/*. (*!.21!!3 ^!4> /, (4* !4 /*/.!& -&;*1 .2* H -;0<"3A!4>*(I <*-&03* 2* ,/0>2. A!.2 &4 !(/4 6&-* ((*3!3.!<;* !4 .2* /7*4 ,!*;1 2* A&3 A&5;&!1 <5 D!4> K5-0(>03 /, (-&1!& !4 & 4&((/A 7&33 A2*(* 2* -/0;1 4/. 3A!4> 2!3 -;0< &41 D!;;*1 !3 3/4 *4*3.2!03 ,*;;, &5 .2* 2&41 /, &(!3 <*,/(* (/5 (*<7&>03 8 (1 4&4-!*4. -(!6!4&;-/0(. &. .2*43 3/ 4&6*1 <*-&03* !.3&./4 (*3 !;;<*3!1*.2* -("7";!3 A2*(* .2* >/1 /, A&(A&3 3&!1 ./ 2&=* <**4 .(!*1 ,/(.2* 60(1*(/, &;!((.2!03 .2* 3/4 /, /3*!1/4 # # (/;/4 3 ;*>!3;&.!/4 (&!3*1 .2* (*/7&>03 !4./ /4* /, .2* 6/3. 7/A*(,0; </1!*3 <5 .(&43,*((!4> ./ !. .2* >(*&.*(7&(./, .2*K0(!31!-.!/4/, .2* 72>.3* &3A*;;&3 .2*307*(=!3!/4/, .2**.4.!(* 70<;!- &16!4!3.(&.!/4 .2* -/410-. /, 6&F >!3.(&.*3 .2* .(&43&-.!/43 /, .2!7/70;&(&33*6<5 (*;!>!/4 ;&A3 6/(&;3 &41 1!3-!F 7;!4*'&41>!=!4>!.7/A*(./-&;;*=*4 7(!=&.* 7*/7;* ./ &--/04. ,/(/,,*43!=* <*2&=!/0(2* H /0(./, (*/7&>03 !&3 !.3 ,0;;4&6* (&4 -/43!3.*1 /, ;!,*"6*6<*(3 (*/7&>!.*39 A2/ 3077;*6*4.*1 .2*!(406<*(<5 .2* &11!.!/4 /, 30-2 &(-2/43 &3 2&1 1!3-2&(>*1 .2*!(10.!*3 A!.2/0.(*7(/&-2 /. /4;5 .2*!(&>* <0. .2*!(3&-(*1 -2&(&-.*(.*41*1 ./ !4-(*&3* .2* !4,;0*4-* /, .2* (*/7&>!.*3 2*5 A*(* (*>&(1*1 &3 !4 & 6*&30(* 6!4!3.*(3 /, .2* 9 " /(9 " 8 0(!*39 A2/ 041*(.2* 4&6* /, " 8=*4*(&<;*9 2&1 .2*!(-&=* !6F 6*1!&.*;5 <*4*&.2 .2* (*/7&>03 &41 A2/3* A/(32!7 -&6* 041*(.2*!(-&(* 2* (*/7&>03 7(/=!4>./ /-/43*(=&.!=* ,/(.2* 2*&1;/4> 7&-* /, .2* .2*4!&4 1*6/-(&-5 !.3 >*4*(&; (!>2. /, 307*(=!3!4> .2* &16!F 4!3.(&.!/4 A&3 .&D*4 ,(/6 !. <5 .2* ;&A /, 72!&;.*3 !4 C?@ 4 0 &41 .(&43,*((*1 ./ & 4*A &0.2/(!.5 .2* > (8>0&(F 1!&43 /, .2* ;&A39 20. !. (*-/=*(*1 .2!3 (!>2./4 .2* ,&; /, .2* 2!(.5 .3 7/;!.!-&; 7/A*(3 3**6 4*=*(./ 2&=* <**4 -;*&(;5 1*,!4*1 !./,.*4 &-.*1 !4 .2* 4&6* /, &41 A!.2 ,0;; 7/A*(3 ,(/6 .2* 7*/7;* 2!-2 &;3/ &--*7.*1 !.3 1*-!3!/43 /4 &;5 7/33!<;* 30<K*-.3 41*(.2* /6&4 (0;* !. A&3 3.!;; (*>&(1*1 &3 .2* 307(*6* &0.2/(!.5 2*4 &3 ,/(6*(;5 !. *0*(-!3*1 & 6/3. 6!40.* =!>!;&4-* /=*(,/(*!>4*(3 (*3 8 &. 2* (**D 4&6* ,/(.2* >/1 /, A&(3/4 /, L*0 <5 *(& A2/3* :0&((*;3/6* .*67*(/6*(3077/3*3 ./ 2&=* 7&33*1 /=*(./ 2*(3/4 3/ *,,*-.!=*;5 .2&. 2* 1*;!>2.*1!4 4/.2!4>0.<&..;*&41<;//1F 32*1 !3!43&.!&<;* .2!(3./ (*<;//1 6&D*3 2!6 2&.*,0;./ 2!3 ,&.2*(&41 &;; .2* >/13 *37*-!&;;5 .2*4& !3 ,&=/0(!.* 2&04. !3 .2* ;&41 / .2* A!;1 &41 A&(;!D* 2(&-!&43 4 ,/(6 &41 *:0!74/*4. .2* !1*&; / A&(;!D* 2*(/*3 A2/ &(* .2*(*,/(* -&;;*1 H (*3";!D*I &41 H 1&(;!4>3 /, (*3 I 2* &1=&4-*3 &-F -/(1!4> ./ /6*(4/A /4 ,//. 4/A !4 & -2&(!/. 1(&A4 <5 6&>4!,!-*4. 3.**13 &.F .*41*1 <5 2!3 *:0&;;5 <;//1.2!(3.5 3!3.*(. 83.(!,*9 2!3 3/43 5 &41 , (8,*&(&41 ,(!>2.9 &41 9": .2* >/11*33 /, <&..;* &41 A&3.*(/, -!.!*3 82* 2!63*;,<*!4> -&;;*1 9": / % (032!4> !4 <;!41 (&* .2(/0>2 !41!3-(!6!4&.* 3;&0>2.*(2/0>2 ,!>2.!4> /4 .2* (/K&4 3!1* .2* <;//132*1 4;5!3"1*&(./ 2!3 2*&(. 0. 2!3 .6<(!1;*1 3.(*4>.2 &41 <;!41 =&;/0(.0(4 ./ 2!3 1!3F &1=&4.&>* &41 &;A&53 <(!4> &</0. 2!3 1*,*&. !4 .2* 7(*3*4-* /, .2*4& .2* >/1F 1*33 /, /(1*(*1 <&..&;!/43 2* !3 &;3/ <*&.*4 <5 2*(/*3 ,!>2.!4> 041*(2*(;*&1*(32!7 &3 <5 * (-;*3 !4 .2* -/4.*3 A!.2 5-403 &41 <5 !/6*1*3 <*,/(* (/5 41 .2!3 =!*A /, (*3 &3 .2* <;//1.2!(3.5 >/1 , <&..;*3 !3 !4 .2* 6!4 .2&./, ;&.*(.!6*3 &;3/ 3 *&(;5 &3 /6*(2* !3 .2* ,(!*41 &41 ;/=*(/, 72(/!1.* A2/ 2&3 </(4* 2!6 (/3 &41 4.*(/3 K *!6/3 &41 2/</3 &3 A*;; &3 &(6 4!& A!,* /, &1603 .2* ,/041*(/, 2*<*3 A2*(* </.2 >/11*33*3 A*(* A/(F 32!77*1 &3 &4-*3.(&; 1*!.!*3 * !3 4/. 4&6*1 3/ ,.*4 &3 .2* >/13 /, 7*&-* <0. &3 (*3 /(45&;!/3 2* A&3 1/0<.;*33 A/(32!77*1 *=*(5A2*(* 4/.&<;5 !4 7&(.& !4 (-&1!& &41 8&3 ,&.2*(/, 8 4/6&!!3 !4 ;!3 .7&(.&5/04>1/>3 A*(* 3&-(,,!*1 ./ 2!6 041*(.2* .!.;* /, +(.2*43 .2* &4-!*4. 3!.* /, &2!>2 -/0(./, K03.!-* .2* (> 7&>03 A&3 -/43*-(&.*1 ./ 2!6 2*(* !4 ,/(6*(1&53 .2* ;567!&4 >/13 2&1 3&. !4 K01>6*4. *4 2!6 &41 &<3/;=*1 2!6 A2*4 2* 2&1 3;&!4 &;!(" (2/.2!03 ,/(/,,*(!4> =!/;*4-* ./ ;-!77* 2!3 1&0>2.*(<5 B&0;03 !3 356</;3 A*(* .2* 37*&(&41 .2* <0(4!4> ./(-2 *,/(* .2* !4.(/10-.!/4 /, .(067*.3 .A/

'#&%*% ('&%' 91'0"# 7 # ' (' * (*"&
1'9#&%' "'.'$&)' *"&* '0"' 1* *$Y+' (& 1%*"&
%#7 1$ (/1**$&

!4' A/(D3' /,' &(.' 2*' A&3' (*7(*3*4.*1' &3' &
5/04>' &41' 2&413/6*' 6&4' /,' 3.(/4>' 3!4*A5'
,(&6*' 2!3' 2&!(' !4' 32/(.' -0(;3' &41' &' 3/6*F
A2&.' 3/6<(*' ;//D' !4' 2!3' -/04.*4&4-*' !4'
.2*' *&(;5' 3.5;*' 2*' !3' <*&(1*1' &41' !4' &(F
6/0(' !4' .2*' ;&.*(' <*&(1;*33' &41' A!.2' /4;5'
.2*' 2*;6*.' /4' *' !3' /,.*4' (*7(*3*4.*1' !4'
-/67&45' A!.2' 72(/1!.*' &41' .2*!(' </5'
(/3' A2/' 7;&53' A!.2' 2!3' ,&.2*(3' &(63'
4*' /,' .2*' 6/3.' ,&6/03' 3.&.0*3' *0.&4.' !3'
.2&.' !4' .2*' !:;&' 01/=!3!' A2!-2' 1!37;&53'
2!6' !4' &4' *&35' (*3.!4>' &..!.01*' A!.2' 2!3'
&(63';&!1' &3!1*' &41' (/3' &.' 2!3' ,**.' # '
-0.' 4' 2!3' !1*4.!,!-&.!/4' A!.2' .2*' .&;!&4'
&(3' ' 0
(.3*43' ' (**D' 7253!-!&4' </6' !4'
&77&1/-!&' ./A&(13' .2*' *41' /,' .2*' @41' -*4F
.0(5' ' *' A&3' .2*' &0.2/(' ,' .A/' =&;0F
&<;*' A/(D3' 8*&-2' !4' ,/0(' </!D39' A(!..*4' !4'
.2*' /4!-' 1!&;*-.' /4' .2*' -&03*3' &41' 356 7F
./63' /,' &-0.*' &41' -2(/4!-' 7&!43' &41' /4'
.2*!(' 0(*
(.*' !,*' /,' ;- 4 03' D!4>' /,' .2*'
23*&-!&43' # ' (' &41' 7(/.*-.(*33' /,'
1533*03' #
(B.203&' 8$9' 4' (**-*' &',(*:0*4.' 4&6*
/,' 37(!4>3' *37*-!&;;5' /,' /4*' !4' ;!3' &41'
/4*' /4'.2*' 3;&41' /,' (.5>!&' !4'.2*' 7/(./,'
5(&-03*' A2!-2' A&3' 3077/3*1' ./' 2&=*' &'
30<.*((&4*&4' -/6 604!-&.!/4' A!.2'.2*' (!=*('
;72*03' !4' ;!3' 2*' .A/' ,/04.&!43' A*(*'
&33/-!&.*1'<5'.2*' ,/;;/A!4>';*>*41' 3'.2*'
45672' /,' ;!3' .!(*1' A!.2'.2*' -2&3*' A&3'
<&.2!4>' !4' .2*' ;72*03' .2*' (!=*(B1',*;;'
7&33!/4&.*;5'!4';/=*' A!.2'2*(" 32*',;*1',(/6'
2!6'./' (.5>!&' A2*(*' (."6!3' 2!1' 2*(' !4'
.2*' >(/041' &41';*.' 2*(' >032' /0.' /,' !.' !4'.2*'
,/(6' /,' &',/04.&!4" <0.' ;72*03',;/A*1' /4'
041*(' .2*' 3*&' ./' (.5>!&' &41' 3/' 04!.*1'
2!63*;,' A!.2' 2!3' <*;/=*1' /4*' 2*' 3. !5' !3'
*07;&!4*1' B' .2*' ;!D*4*33' /,' 4&6*' !4' .2*'
,/04.&!43'<5'.2*' -!(-063.&4-*' .2&.' (.*6!3'
A&3' A/(32!77*1'</.2' !4' ;!3' &41' (.5>!&'
&3' (' &41'<5' .2*' ,&-.' .2&.' !4' 3/6*'
7;&-*3' .2*' ;72*03' &-.0&;;5' 1/*3' (04' 04F
1*(>(/041
8@9' 4*' /,' .2*' < '#
(>*!' 2*' 4&6*' /,' -*(.&!4' -2&7*;3' &.'
/6*' 7(/<&<;5' .A*4.5",/0(' !4' 406<*('
&-2' /,' .2' ,/0(' .(!<*3' /,' .2*' -!.5' 2&=!4>'
3!0' /' .2*3*' -2&7*;3' &' 7(/-*33!/4' A&3'
6&1*' /4' &(-2' $7' &41' $U' &.' A2!-2' .20'
A!,*' /,' .2*' ;&6*4' !J;!3' A&;D*1' A!.2'
04D*67.' 2&!(' &3' &' 3!>4' /,' 6/0(4!4>'% 4'
&5' $V' .2*' /4.!,,3' *3.&;' !(>!43' (&*F
./(3' &41' &;' -!.!Q*43' A2/' 2&1' &' (!>2.' ./'
&33!3.' &.' *&-(!,!-*3' 6&(-2*1' ./' .2*' //1*4'
<(!1>*' =*(' .2*' !<*(' #, " ' (
&41' &,.*(' 3&-(!,!-!4>' .2(*A' !4./' .2*' (!=*('
.A*4.5",/0(' 6*4' /,' 3.(&A' ;!D*A!3*' 4&6*1'
(>*!' A2!-2' 2&1' 7(/<&<;5' <**4' 204>' 07'
!4' .2*' -2&7*;3' &.' .2*' ,!(3.' 7(/-*33!/4' &41'
A*(*' ,*.-2*1' &A&5' &.' .2*' 3*-/41' 2*'
3&-(!,!-*' A&3' (*>&(1*1' &3' *07!&./(5'&41' .2*'
7077*.3' &3' 30<3.!.0.*3' ,/(' ,/(6*(' 206&4'
=!-.!63' 2*' 6*&4!4>' /,' .2*' 4&6*' A&3'
04D4/A4' ./' .2*' &4-!*4.3' &41' 3/' A&3' .2*'
1*!.5' ./' A2/6' .2*' 3&-(!,!-*' A&3' /,,*(*1
57& *(*'##' ' . $ # 0/ & * 1 #
(>*4. 03' ' /6&4' 3!;=*(' -/!4' -0((*4.'
,(/6' .2*' *41' /,' .2*' (1' -*4.0(5' ' &41'
/4A&(13' '"
(>/' 2*' 32!7' /,' .2*' (>/4&0.3' # '
4&6*1'&,.*(' 2*(' <0!;1*(' (>/3
(>/4&0.3' 2/3*' A2/' 3&!;*1' !4' .2*'
(>/' A!.2' &3/4' 3/4' /,')3"4' &41'>(&413/4'
/,' (*.2*03' # ' # ' $9' &' >*4*(&./!4'
<*,/(*' .2*' (/K&4' A&(' ./' &' A2!-2' !4'
;&.*(' .!6*3' A&3' 041*(3./!1' ./' <*' /;-2!3'
;5!4>'&.' .2*' ,&(.2*3.' *41' /,' .2*' ;&-D' *&'
2*' /<K*-.'0,' .2*' *07*1!./4' A&3' ./' ,*.-2'
<&-D' .2*' >/;1*4' ,;**-*' /,' .2*' (&6' /4' A2!-2'
2(!003' .2*' 3/4' /,' .2 6&3' # ' 2&1'
,;*1' ,(/6' 2!3' ,&.2*(' &41' 2!3' 3.*76/.2*('
4/' ./' .2*' 6&>!-!&4' .*3' D!4>' /,' &

"""""""""B ?

37(!4>' /0.' /,' .2* 6 ' 2*' 4*(/' 0&3' >!=*4' 7' &;;' 2/7*' /,' 30--*33' A2*4' 72(/1!.*' D!41;*3' !4' .2*' <(*&3.' /,' .2*' D!4>3' 1&0>2.*(' 1*&' &4' !((*3!3.!<;*' ;/=*' ,/(' .2*3.(&4>*(B' 1*&' >!=*3' 2!6' &4' /!4.6*4.' ./' 7(/.*-.' 2!6',(/6' .2*' ,!*(5' <(*&.2' /,' .2*' <0;;3' &3' A*;;' &3' .2*' 3.(*4>.2' ./' 2&(4*33' .2*6 ' &41' &1!=!3*3' 2!6 ' ./' .2(/A' &' 3./4*' !4' &6/4>' .2*' *&(.2"</(4' >!&4.3' A2/' A!;;' .2*4' D!;;' *&-2' /.2*(' 0.' A2*4' &;;' .2!3' 1/4*' B *.*3' 1/*3' 4/.' >!=*' 07' .2*' ,!**-*' 2*4' &3/4' A!.2' .2*' 2*;7' /,' *1*&' A2/6' 2*' 7(/6!3*3' ./' .&D*' 2/6*' A!.2' 2!6' &3' 2!3' A!,*' .2(/A3' .2*' 1(&>/4' .2&.' >0&(13' !.' !4./' &' 3;**7' .&D*3' !.' 1/A4' &41' *3-&7*3' A!.2' *1*&' &41' 2!3' -/6(&1*3' ! *.*3' 3*413' 2!3' 3/4' <35(.03' !4' 70(30!.' A2/6' &3/4' D!;;3' <5' 3.(&.&>*6 ' 4/.2*(' 3./(5' !3' .2&.' *1*&' .&D*3' 2*(' ;!..;*' <(/.2*(' <35(.03' A!.2' 2*(' -0.3' 2!6' ./' 7!*-*3' &41' .2(/A3' .2*' ;!6<3' /4*' <5' /4*' !4./' .2*' 3*&' .2&.' 2*(' ,&.2*(' A2!;*' 70(30!4>' 2*(' 6!>2.' <*' 1*;&5*1' !4' 7!-D!4>' .2*6' 07' &41' ;&5!4>' .2*6' /0.

3' ./' .2*' 7 "' /,' .2*' (>/4&0.3' .2*' ;*>*413' 1!,,*(' -/43!1*(&<;5' 4*' /,' .2*' /;1*3.' 6&D*3' .2*6' 3&!;' 07' .2*' 2&3!3' !4./' .2*' (!=*(' -*&403' &41' /=*(' .2&.' ./' !<5&' A2*(*' .2*5' 1(&>' .2*' 32!7' .A*;=*' 1&53' K/0(4*5' /=*(;&41' ./' &D*' (!./4!3' &41' >*.' 2/6*' &-(/33' .2*' *1!.*((&4*&4' .2*(' &-F -/04.3' &>(**' A!.2' .2!3' !4' 30<3.&4-*' A2!;*' G/.2*(3&>&!4' 6!0' 07' .2*' /;1*(' .(&1!.!/4' A!.2' .2*' &1=*4.0(*3' /,' 1533*03M' .2*' 2*(/*3' 3&!;' 07' .2*' &40<*' !4./' .2*' 1(!&.!-' &41' &(*' A!.2!4' 2&!;' /,' /(-5(&' 8 /(,09' A2*4' &' 3./(6' <(*&D3' /0.' &41' .2*' 7!*-*' /,' /&D',(/6' /1/4&' ,/(*.*;;3' .2*!(' (0!4' 04;*33' .2*5' 2&=*' .2*' 60(1*(' /,' <3K' .03' *07!&.*1' <5' !(-*' 2*4' .2*5' 3&!;' 07' .2*' (;1 403' !4./' .2*' 2/4*' &41' 3/' !4./' .2*' 5((2*4!&4' 3*&' ./' .2*' !3;&41' /,' !(-*' A2/' 70(!,!*3' .2*6' 2*5' >/' 7&3.' .2*' !3;&41' /,' .2*' !(*43' &>&!43.' A2/3*' 6&>!-' .2*' 3/4>3' /,' (72*03' 7(/.*-.' .2*6' ;;' <0.' &.*3' # ' 7&33' !4' 3&,*.5' <*.A**4' -5;;&' &41' 2&(5<1!3' A!.2' .2*' 2*;7' /,' .2*' >/13' &41' (*&-2' .2*' !3;*' /,' .2*' 23*&-!&43' A2*(*' &3/4' 6&((!*3' *1*&' ./' *5&1*' .2*' 3*4.*4-*' /,' .2*!(' 2/3.' ;-!4<03' A2/' !4' 2!3' -&7&-!.5' &3' 067!(*' 2&3' >!=*4' K01>6*4.' .2&.' .2*' ' *1*&'<*' 1*;!=*(*1' 07' ./' 2*(' /;-2!&4' 70(30*(3' ;(*&15' !.2!4' 3!>2.' /,' .2*' *;/7/44*303' &' 3./(6' 1(!=*3' !2*6' !4./' .2*' !<5&4' 5(.*3' A2*4-*' .2*5' -&((5' .2*!(' 32!7' 3&=*1' <5' 1!=!4*' &33!3.&4-*' ./' &D*' (!./4!3' 2*4-*' >0!1*1' <5' (!./4' 83*' &) ' !4./' .2*' *1!.*((&4*&4' .2*5' (*.0(4' <5' A&5' /,' (*.*' ./' ;/;-/3

0(!4>' .2*!(' &<3*4-*' *;!&3' 2&3' 70.' ./' 1*&.2')3/4' &41' 2!3' 3/4' (,.6J-203' &41 &3/43' 6/.2*(' 2&3' .&D*4' 2*(' /A4' ;!,*' *1*&' 3*.3' ./' A/(D'./'&=*4>*' .2*6' *,/(*' .2*' *5*3' /,' *;!&3' 1&0>2.*(3' 32*' -0.3' 07' &4' /;1' 2*">/&.' &41' <5' </!;!4>' !.' !4' &' 6&>!-' -&0;1(/4' (*3./(*3' !.' ./' ;!,*' &41' 5/0.' (/6!3!4>' !4' ;!D*' 6&44*(' ./' (*4*A' .2*' 5/0.2' /,' .2*' &>*1' *;!&3' 32*' !410-*3' .2*6' ./' D!;;' .2*!(' ,&.2*(' &41' .2*4' ;*&=*3' .2*6' !4' .2*' ;0(-2' (!=*4' &A&5' *&3.03' .2*' 3/4' /,' .2*' 60(1*(1*' D!4>' &3/4' &41' *1*&' .&D*' (*,0>*' A!.2' (/4' D!4>' /,' /(!4.2' 0.' &,.*(' .*4'5*&(3' /,' 2&775' A*1;/-D' &1/4' (*3/;=*3' ./' 6&((5' (*/43' 1&0>2.*(' (.!3&' /(' ;&0-*' 4' .2!3' *1*&' D!;;3' .2*' <(!1*' &41' 2*(' ,&.2*(' <5' 3*41!4>' .2*' 043037*-.!4>' 6&!1*4' &' 7/!3/4*1' (/<*' &41' 1!&1*6' &3' &<(!1&;' >!,.' 60(1*(3' 2*(' /A4' .A/' 3/43' *(' 6*(03' &41' 2*(*3' !4' 2*(' ,&!.2;*33' 203<&41 3' 3!>2.' &41' *3-&7!4>' !4' &' -&(' 1!&A4' B ' 3*(F 7*4.3' 3*4.' <5' 2*(' >(&41,&.2*(' Z;! 3' 6&D*3' 2*(' A&5' ./' K >*03' D!4>' /,' .2*43' # ' 0 ' &3/4' !3' 3&!1' ./' 2&=*' -/6*' <5' 2!3' 1*&.2' .2(/0>2' .2*' (>/' A2!-2' 2*' 2&1' 3*.' 07' &41' -/43*-(&.*1' /4' .2*' 3.2F 603' 4*' 1&5' A2*4' 2*' A&3' ;5!4>' 1/A4' ./' (*3.' 041*(' .2*' 32!7' .2*' 3.*6' ,*;;' /,' &41' D!;;*1' 2!6

2*' ;*>*41' /,' .2*' (>/4&0.3' !3' *OF .(*6*;5' &4-!*4.'' *=*4' /6*(' B*&D3' /,' !.' &3' 04!=*(3&;;5' D4/A4' d *' ,!(B' ,!41' !.' .(*&.*1' !4' 1*.&!;' !4' !41&(' .2*4' .2*' ;*OF &41(!&4' 7/*.' 7/;;/4!03' /,' 2/1*3' .(!*1' ./' 2&(6/4!3*' .2*' =&(!/03' =*(3!/43' &41' A&3' ,/;F ;/A*1' <5' .2*' &.!4' 7/*.' &;*(!03' ;&--03' &41' .2*' ;&.*' (**D' 3*01/" (72*03

(>03' 8$9' /4' /,' 4 -203' > 4 (' /(' (*3./(' /(' &--/(1!4>' ./' &4/.2*(' &/-/0!;.' &4' *&(.2</6' >!&4.' A2/' 2&1' *5*3' &;;' /=*(' 213' </15' A2*4-*' 2*' A&3' -&;;*1' &4/7.*3' /(' &;;"3**!4>' *(&' 3*.' 2!6' ./' A&.-2' ^' # ' A2*4' .(&43,/(6*1' !4./' &' -/A*' <0.' *(6*3' &.' L*03' <!11!4>' 3*4.' &;;' 2!3' *5*3' ./' 3;**7' <5' .2*' 6&>!-' /,' 2!3' A&41' &41' ;0.*' &41' -0.' 2!3' 2*&1' /,' A!.2' &' 3!-D;*"32&7*1' 3A/(1' A2*4-*' 2!3' .!.;*' 1 " ' &3' *07;&!4*1' ./' 6*&4' H' 3;&5*(' /,' (>03 I' *(&' 3*.' .2*' *5*3' /,' 2*(' 1*&1' A&.-26&4' !4' .2*' .&!;' /,' 2*(' 3&-(*1' <!(1' .2*' 7*&-/-D

8@9' /4' /,' 2(!003' &41' 2&;- 7*' .2*' 1&0>2.*(' /,'! *.*3' *' !3' 3&!1' ./' 2&=*' -/6*' ./' (-226 403' .2*' 2/6*' /,' 2!3',&.2*(' &41' ./' 2&=*' <0!;.' .2*' (>/' A2!-2' A&3' 4&6*1' &,.*(' 2!6' --/(1!4>' ./' &4/.2*(' &--/04.' <*' A&3' 32!7A(*-D*1' A!.2' 2!3' <(/.2*(3' &.' .2*' (!&41' /,' (.!&3' /4' .2*!(' A&5' ./' (**-*' &41' .2*4-*' -&((!*1' ./' /;-2!3' <5' .2*' (>/4&0.3

(>K2B&37;1 3' 83!;=*("32!*;1*19' 4' .2*' ;&.*(' &(65' /,' ;*O&41*(' .2*' (*&.' .2*' (*64&4.' /,' .2*' &-*1/4!&4' 2*&=5"&(6*1

!4,&4.(5 A2/ 2&1 -(/33*1 .2* *;;*37/4. A!.2 .2* D!4> A*(* ,/(6*1 !4./ &-/(73 /, 0&(13 !4 .2* 2*&=5 !4,&4.(5 /, .2* ;!4* &41 4&6*1 ,(/6 .2*!(32!*;13 <*!4> /=*(F ;&!1 A!.2 41!&4 3!;=*(,.*(;*0&41*(3 1*&.2.2* -/(73 A&3 1!3<&41*1<5 4.!>1403 /4 &--/04. /,!.3 /=*(A**4!4> 7(*.*43!/43

(!&14* 2* 1&0>2.*(/, !4/3 &41 &3!72&* A2/ ,*;; !4 ;/=* A!.2 2*3*03 A2*4 2* -&6* ./ (*.* ./ D!;;.2* !4/.&0(&41 >&=* 2!6 &-;0* /, 5&(4 ./ 2*;7 2!6 ./ ,!41 2!3 A&5<&-D ./ .2* ;!>2./, 1&5 &,.*(3;&5!4> .2* 6/43.*(!4.2* &< 0!4.2 2* .2*4 ,;*1 &A&5 A!.2 2!6 /6*((*7(*3*4.3 (!&14* &3 3;&!4 <5 (.*6!3 !4 .2* 3;&41 /, !& -;/3* ./ (*.* &.2* (*:0*3./, !/45303 0.2*;&.*(;*>*41 32!,.3.2* 3-*4* ./.2* 3;* /, &0/3 A2*(* .2* 3;06<*(!4> (!&14* !3 1*3*(.*1 <5 2*3*03 &D!4> 07 32* !3 /4 .2* <(!4D /, 1*37&!(A2*4 !/45303 -/6*3 &41 (&!3*3 2*(./ .2* 1!>4!.5 /, &>/1 3 A!,* L*03 >(&4.3 2*(!6 6/(.&;!.5 &41 3*.3 2*(<(!1&; >!,. & -(/A4 &6/4> .2* 3.&(3 2* (*F -*!=*1 1!=!4* 2/4/0(3 &. &0/3 2*(,*3.!=&;3 A*(* 2*;1 4/A A!.2 1!36&;((!.*3 (*-&;!4> 2*(&<&41/46*4. 4/A A!.2 <&--2&4&;!&4 (*=*;(5 <*-/6!4> .2* 2&775 <(!1* /, !/F 45303 .2*43 !4 .2* &0.064 .2*5 2*;1 &K/5/03 ,*3.!=&; ./2*(&41 !/45303 A2!-2 2*3*03 A&3 3077/3*1 ./ 2&5* ,/041*1 /4 2!3 (*.0(4 ,(/6 (*.* 4 .&;5 A2*(* .2*5 !1*4.!,!*1 !/45303 A!.2 .2*!(A!4*">/1 !<*(.2*5 &;3/ .//D (!F &14* ,/(.2* A!4*">/11*33 !<*(&

(;*3 8 (. 2* "12 /4* /, .2* 6/3. *,,*-.!=* *4>!4*3 03*1 <5 .2* &4-!*4.3 ./ 6&D* & <(*&-2 !4 .2* A&;;3 /, & <*3!*>*1 ./A4 (!>!4&;;5 !. -/4F 3!3.*1 /, &3.(/4> 7/;* A!.2 !(/4"6/04.*1 2*&1 <(/0>2. 07 ./ .2* A&;; !4 *&(;!*(.!6*3 <5 2&41 !4 ;&.*(.!6*3 /4 A2**;3 4 !.3 ,!4&; ,/(6 !. A&3 -/43.(0-.*1 !4 .2* ,/;;/A!4>6&44*(3./0.<*&6 3/6*.!6*3 -/67/3*1 /, 3*=*(&; 7!*-*3 &41 6*&30(!4> ,(/6 ?V ./ $NN ,**.; /4> /(6/(* A&3 204> <5 (/7*3 /4 & 3.(/4>;5 6/04.*1 2/(!Q/4.B <*&6 &41 3A04> <&-DA&(13 &41 ,/(A&(13 3/ &3 ./ ;//3*4 .2* 3./4*3 /, .2* A&;; &41 6&D* !. ,&;; 3 .2* *4>!4* 3./1 -;/3* ./

.2* A&;; .2* 6*4 A/(D!4> !. A*(* 32*;.*(*1 <5 &(//,*1 32*;; /, </&(13 -&;;*1 .2* (&6"

./(./!3*32*;;& " &41 (*3.!4= /4 &,(&6*A/(D .2&.(&4 07/4 A2**;3 7(/.*-. .2* (//, &41 3!1*3 /, .2* 32X &>&!43. ,!(* .2(/A4 ,(/6 .2* A&;;3 .2 A*(* -/&.*1 A!.2 (&A /(A*;; 3/&D*1 2!18 /(/.2*(3!6!;&(-/4.(!=&4-*3 2* ;/X *4*1 3./4*3 *(* 7!-D*1 0. /, .2* AX A!.2 &3./(/4>!(/4 2//D &.2* *41 /, &7/ .2* A&;;"3!-D;* & - '&3!.A&3 -& * !4>;* 2/;*3 A*Wd* 704-2*1 !4.2* A&;; A! .2* A&;;"</(*(& & (&6 A!.2 &32& 7/!4. A2!-2 A&3 7032*1 ,/(A&(1 /4 (/;;*! 2* <*3!*>*1 .(!*1 ./ D4/-D .2* (&4 2*&1 /,; <5 1(/77!4> 2*&=5 3./4*3 /4 !. ./ -&.-2 !. !4 &4//3* &41 .0(4 .2* <!/ &3!1* /(07A&(13 /(./ 1*&1*4 .2* ,/(-* !.3 <;/A3 A!.2 3&41<&>3 &41 6&.3 , ., ./A4 A!32*1 ./ 3*-0(* !410;>*4.(*&.6*! !. 2&1 ./ 30((*41*(<*,/(* .2* (&6 ./0-2 .2* A&;;3 & $

(!14 (**D 7/*. &41 603!-!&4 *.2564&!4 *3</3 A2/ ,;/0(!32*1 &</ ?@V /4 .2* -/0(3* /, &(/=!4> ;!,* 37*4. &-/43!1*(&<;* .!6* &. .2* -/0(. 6B!&41*(.5(&4./, /(!4.2 *(* 2* ,!;> &=* .2* 1!.25(&6< & &4 &(.!3.!-,/4 &41 A&3 .2*(*,/(* (*>&(1*1 &3 .2* !4=*4. /, .2&. 3.5;* !4 >*4*(&; * !3 <*3. D4/= <5 .2* 3./(5 /, 2!3 (*3-0* /4 .2* <&-D /, 1/;72!4 *.0(4!4>,(/6 &4 &(.!3.!-K/0(6 .2(/0>2 /A*(.&;5 &41 !-!;5./ 2!3 7&.(/ 2* .(03.*1 2!63*;, ./ & -(*A /, /(!4.2!! 3&!;/(3 A2/ (*3/;=*1 ./ D!;; 2!6 /4 .2* /7 3*& , /(.2* 3&D* /, 2!3 .(*&30(*3 3 &; ;& ,&=/0(2* *0./(.*1 .2* 7*(6!33!/4 ./ 32 2!3 3/4>3 /4-* 6/(* ./ .2* ;5(* &41 .2* ./ .2(/A 2!63*;, !4./ .2* 3*& , ,!3 3.(&! 1(*A & 406<*(/, 1/;72!43 &(/041 2!6 /! /, A2!-2 .//D 2!6 /4 !.3 <&-D &41 -&((!! 2!6 3&,* ./ ;&41 &. .2* , /./, .2* ,/(*;&! /, &*4T(06 2*4-* 2* 2&3.*4*1 ./ -!4.2 &41 -/4=!-.*1 .2* 3&!;/(3 A2/ A* .*;;!4> *(!&41*(.2*5 2&1 ;*,. .2* " 3&,* &. &(*4.06 <(/40* 3.&.0* / , 6&4 /4 & 1/;72!4 A2!-2 3./1 /4 .2* X /, &*4&(/4 A&3 3077/3*1 ./ <* 2!3 .2&4 /,,*(!4> ./ f *(/1/.03 !' @B 2&4D3>!=!4> 564 ./ .2* >/1 /, .DA 3*& 7(*3*(=*1 041*(2!3 4&6* <*;/4>3 ./ & ;&.*(.!6*

(!3.3*4 .03 (**D >(&6 6&(!&4 &41 (2*./(!-!&4 / , !-&*& !4 !.254!& ,(!*41 /, !<&4!03 A2/ 7(&!3*3 2!6 !4 .2* 2!>2*3. .*(63 2* A&3 D!;;*1 !4 &4 *&(.2:0&D* &. !//6*1!& VR !3 4&6 *!3*((/4*/03;5 &..&-2*1 ./ & -/;;*-.!/4 7(/<&<;5 -/67/3*1 !4 .2* V.2 /(" .2 -*4.0(5 /, (/.!-7!3.;*3 ,**<;* !6!.&.!/43 /, ;-!72(/4 ;//3* !4 ./4* &41 1*-;&6&./(5 !4 3.5;*

(!3.3*03 <*4*,!-*4.!1*!.5 A/(3;!!77*1 !4 =&(!/03 7&(.3 /, (**-* *37*-!&;;5 !4 2*33&;5 /*/.!& .2* ,(!-&4 -/;/45 /, 5(*4* &41 .2* 3;&413 /, */3 /(-5(& !-!;5 &41 &(1!4!& * >!=*3 2!3 <;*33!4> ./ 2*(13 204.!4> <**"D**7!4> A!4* /!; &41 *=*(5 D!41 /, 203<&41(5 4 7&(.!-0;&(2* 1*,*413 6*4 &4!6&;3 &41 7;&4.3 ,(/6 .2* 1*3.(0-.!=* 2*&./, .2* 1/>"1&53 -F -/(1!4> ./ .2* 3./(5 6/3. !4 =/>0* 2* !3 .2* 3/4 /, 7/;;/ <5 .2* 2*33&;!&4 456 72 5(*4* A2/6 .2* >/1 -&((!*1 /,, ./ .2* -/04.(5 4&6*1 &,.*(2*(2* !3 .2* 1&0>2.*(/, 573*03 &41 >(&411&0>2F .*(8&4/.2*(3./(5 3&53 1&0>2.*(9 /, .2* (!=*("> /1 *4*03 ,.*(2!3 <!(.2 *(6*3 .//D (!3.&*03 ./ .2* /0(3&41 &*&.2* >/1F 1*33 /, .2* *&(.2 A2/ <(/0>2.2!6 07 &41 6&1* 2!6 &4 !6 6/(.&; >/1 /6*.!6*3 2* !3 -&;;*1 .2* 3/4 /, (&403 8 *&=*49 &41 3*&8 &(.29 4.2* 2*<&4 ;*>*41 2* &41 0."4"* .2* 1&0>2.*(/, &1603 &(* (*7(*3*4.*1 &3 .2* 7&(*4.3 /, -.3*/4 * <(/0>2.1*3.(0-.!/4 07/4 .2* 456 72 0(5" 1!-* .2* <*;/=*1 /, (72*03 ,/(!4 ,;**!4> ,(/6 2!3 7*(3*-0.!/43 32* A&3 D!;;*1 <5 &34&D* f *(>!; 6 1 != $V"VVR g

(!3.&(-203 8$9 .(&>!-7/*./, > &&-/4.*67/(&(5 /, 0(!7!1*3 2* !3 3&!1 ./ 2&=* ;!=*1 6/(* .2&4 &2041(*1 5*&(3 , 2!3 UN 1(&6&3 /4;5 .A/ .!.;*3 (*6&!4

8@9 6&.2*6&.!-!&4 &41 &3.(/4/6*(/, &6/3 A2/ ;!=*1 &41 3.01!*1 &. ;*0&41(!& &</0. @UN 4 &41 A!.2 2!3 707!; !7F 7&(-203 >(*&.;5 &1=&4-*1 .2* 3-!*4-* /, &3.(/4/65 * A&3 .2* ,!(3. A2/ 6&!4F .&!4*1 .2* *&(.2 3 6/.!/4 (/041 .2* 304 &41 /4 !.3 /A4 &0!3 * 3.!;; 7/33*33 & ,(&>6*4. /, & .(*&.!3* <5 2!6 /4 .2* 3!Q* /, .2* 304 &41 6//4 &41 .2*!(1!3.&4-*3 ,(/6 .2* *&(.2

8 9 3-2/;&(</(4!4 &6/.2(&-* &41 & 707!; /, (!3./72J4*3 /, 5Q&4.!06 * ;!=*1 &. ;*0&41(!& !4 .2* ,!(3. 2&;, /, .2* @41 -*4.0(5 4 0 &3 .0./(./ .2* (/5&; 7(!4-*3 &41 D**7*(/, .2* ;!<(&(5 4 .2* .5(&44!-&; (*!>4 /, 2!3 707!; ./;*65 8 253-/4 2* ,;*1 ./ 57(03 &41 .2*(* 1!*1 /, 1(/735 &</0. 4 $? &>*1 U@ * !Q* .2* 6/3.,&6/03 /, .2* ;*0&41(!&4 (!.!-3 &41 1*=/.*1 2!3 &..*4.!/4 6&!4;5 ./ .2* (**D 7/*.3 *37*-!&;;5 /6*(./ A2/6 2* (*41*(*1 *33*4.!&; 3*(=!-* <5 2!3 -(!.!-&; *1!.!/4 /, .2* .*0. A2!-2 (*6&!43 !4 30<F 3.&4-* .2*>(/041A/(D /, /0(7(*3*4.(*-*4F 3!/4 2!3 *1!.!/4 2&1 4/.*3 /4 .2* 6&(>!4 !41!-&.!4> .2* =*(3*3 A2!-2 (!3.&(-203 .2/0>2. 370(!/03 /(1/0<.,0; &41 &45.2!4> *;3* A/(.25 /, (*6&(D 2* 6*&4!4> /, - .2* 4/.*3 &41 .2* (*&3/43 ,/(&77*41!4> .2*6 A*(* *07;&!4*1 !4 3*7&(&.* -/6 6*4F .&(!*3 &41 *0-0(303*3 ,/041*1 /4 & 6&(F =*;;/03;5 6!40.* &-:0&!4.&4-* A!.2 .2* ;&4>0&>* &41 -/4.*4.3 /, .2* /6*(!- 7/*63 &41 .2* A2/;* /, (**D ;!.*(&.0(* * A&3 .2* 2*&1 /, .2* 3-2//;/, 2 (" A2/ -/4.!40*1 A/(D!4> /4 -;&33!-&; .*0.3 !4 2!3 37!(!. .!;; &,.*(.2* <*>!44!4> /, .2* 67!(* , 2!3 406*(/03 >(&6" 6&.!-&;&41*0B*.!-&;A/(D3 /4;5 ,(&>6*4.3 (*6&!4 & !8.*&/, 2!3 /6*(!-3.01!*3 &41 /, .2*!(-2&(&-.*(-&4 <*3.<*> &.2*(*1 ,(/6 .2* *4*.!&4L (./.2* ;!&1 A2!-2 &(* ;&(>*;5 ,/041*1 /4 *0.(&-.3 ,;(/6 .2* (!3.&(-2*&43 !1560 3 &41 (!3./4!-03 (!3. 3 '& *&# (!3.!1*3 8$9 +(-*;*<(&.*1 (**D 7&!4.*(.2* 707!; /, 2!3 ,&.2*(/(<(/.2*(!- 6&-203 *, ;/0(!32*1 &</0. VN 4 &41 A&3 1!3.!4>0!32*1 ,/(2!3 6&3.*(5!4 .2* *07(*33!/4 /, .2* ,**;!4>3 !3 6/3.-*;*<(&.*1 7!-.0(* A&3 .2&./, & -/4:0*(*1 !.5 .3 -*4.(&;>(/07 (*7(*F 3*4.*1 & 6/.2*(15!4> /, & A/041 &41 2/;1!4> <&-D 2*(!4,&4. A2/ !3 -(**7!4> ./ 2*(</3/6 .2&. !. 6&5 4/.1(!4D <;//1 !43.*&1 /, 6!;D /.A!.23.&41!4> .2* 2&(14*33 /, .2*!(-/;/0(!4> 2!3 A/(D3 -/6F 6&41*1 *(5 2!>2 7(!-*3 203 ,/(/4* (*7(*3*4.!4> & 3-*4* !4 .2* *(3!&4 A&(3 -/4.&!4!4> ; ,!>0(*3 2* (*-*!=*1 $ NNN 6!4 8&</0. E 9 f ;!45 000=" TR"$NN g

8@9 / .2* $3. /(@41 -*4.0(5 4 A&3 .2* &0.2/(/, 1 3*(!*3 /, ;/=*"3./(!*3 -&;;*1 ,(/6 !F ;*.03 .2* 3-*4* /, .2* =*4.3 2*3* 3/ ,&(&3 A* D4/A (&* .2* ,!(3. *0&67;*3 /, .2* 7(/3* (/6&4-* 2*5 A*(* A!1*;5 (*&1 !4 &4.!:0!.5 *37*-!&;;5 &6/4> .2* /6&43 ,/(2/3* <*4*,!.2*5 A*(* .(&43;&.*1 !4./ &.!4 <5 .2* 2!3./(!&4 !3*44& 4;5 & ,*A ,(&>6*4.3 /, .2*6 2&=* 30(=!=*1 8 9 , 306&6*1 +(A&3 &(**D(2*./(!-!&4 </(4 &. &1(!&4! !4 !.254!& " $$U /($@T * A&3 *10-&.*1 <5 .2* 6/3.-*;*<(&.*1(2*./F (!-!&43 /, .2* .!6* ;*6/4 /, *(> 603 &41 *(,!1*3 ..;-43 /, .2*43 &41 6&1* ;/4 K/0(4*53 .2(/0>2 3!& >57. (**-* &41 .&;5 4 2!3 (*.0(4 2* A&3 3*!Q*1 A!.2 &4 !;;4*33 .2&.;&3.*1 .2!(.**4 5*&(3 <0. A2!-2 2* 4*=*(&;;/A*1 ./ !4.*((07. 2!3 3.01!*3 !3 (2*./(!- !4 A2!-2 2* .//D *6/3.2*4*3 &41 ;&./, /(2!3 6/1*;3 A&3 !6 6*43*;5 &16!(*1 <5 2!3 -/4.*67/(F &(!*3 2* &;3/3.//1 !4 2!>2 ,&=/0(A!.2 .2* *67*(/(3 *37*-!&;;5 &(-03 0(*;!03

%A2/ &.' 2!3 &77*&;' -&03*1' 65(4&' ./' <*' (*F <0!;.' &,.*(' &4' *&(.2:0&D*' !4' $UR' & " ' 2*' -2!*,' 3-*4*3' /,' 2!3' &-.!=!.5' A*(*' .2*43' &41' 65(4&' A2*(*' 2*' 1!*1' &</0.' & " ' $TN' *3!1*' .A/' .(*&.!3*3' /,' (2*./(!-&;' &41' .*-2F 4!-&;' !67/(.' A*' 3.!;;' 7/33*33' ,!,.5",!=*' /,' 2!3' /(&.!/43' A2!-2' 2*' .//D' >(*&.' 7&!43' ./' *;&</(&.*' 2*5' &(*' -2&(&-.*(!Q*1' <5' 1*7.2' &41' ,0;4*33' /,' .2/0>2.' &41' &(*' A(!..*4' !4' 7/A*(,0;' -/4-!3*' /,.*4' 1!,,!-0;.' &41' /<3-0(*' ;&4>0&>*' /6*' &(*' *0;/>!*3' /4' 1*!.!*3' &41' -!.!*3' 8 /6*' ,/(' !43.&4-*' &41' 65(4&9' /.2*(3' &(*' 1*-;&6&.!/43' &,.*(' &4-!*4.' 6/1*;3' &3' .2*' " (" ' &,.*(' 3/-(&.*3' &41' .2*' 37**-2' &>&!43.' *7.!2*3' &,.*(' *6/3.2*4*3' .2*(3' .(*&.' /,' 2!3F ./(!-&;' 30<!(*-.3' .&D*4' ,(/6' .2*' .!6*3' /,' (**D' !41*7*41*4-*' ' 7*-0;!&(' !4.*(*3.' &..&-2*3' ./' .2*' 3!0' &-(*1' (&.!/43' 3/' 4&6*1' <*-&03*' .2*5' .(*&.' /,' 2!4.3' >!=*4' <5' 3-;*7!03' /4' .2*' -0(*' /,' 2!B' !;;4*33' A2!-2' 2*' (*-*!=*1' !4' &' 3.&.*' /,' 3/64&6F <0;!36 ' &41' 67&(.*1' &;/01' ./' 2!3' ,(!*413 8C9' ' T " " ' ' (**D' (**D3' # ' . & #(603!-!&4' A2/' ;!=*1' 7(/<&<;5' !4' .2*' !41' -*4.0(5' ' &41' -/67/3*1' &4' *4-5-;/7&*1!&' /,' 603!-' #5 ' ' !4' .2(**' </!D3' 2*' ,!(3.' >&=*' &' -/4-!3*' &--/04.' /,' 2&(6/45' (25.26' &41' 6*.(*' .2*' 3*-/41' 1*&;.' A!.2' .2*' *10-&.!4>' !4,;0*4-*' /,' 603!-' /4' .2*' 3/0;' &41' .2*' .2!(1' 1*3-(!<*1' /4' 5.2&>/F (*&4' 7(!4-!7;*3' .2*' 1/-.(!4*' /,' &(!.26*.!-' !4.*(=&;3' &41' .2*' 2&(6/45' /,' .2*' 04!=*(3*' &3' (*3.!4>' /4' .2*' 3&6*' (*;&.!/43' /.A!.2F 3.&41!4>' 6&45' 1*,*-.3' .2*' A/(D' 2&3' .2*' 6*(!.' /,' <*!4>' .2*' -/67;*.*3.' /,' !.3' D!41' A2!-2' 2&3' -/6*' 1/A4' ./' 03' ,(/6' &4.!F :0!.5

(!3.!7703' ' (**D' 72!;/3/72*(' &' 4&F .!=*' /,' 5(*4*' &41' &' 707!;' /,' /-(&.*3' &,.*(' A2/3*' 1*&.2' !4' 4 ' TT' 2*' .(&=*:;*1' &</0.' .2*' (**D' -!.!*3' !67&(.!4>' !43.(0-F .!/4',/(' 6/4*5' *' A&3' .2*',/041*(' /,' .2*' 5(*4&!-' 3-2//;' /(' .2*' 353.*6' /,' *1/4!36' 8,(/6' 2>114*' _7;*&30(*9' !3' 1/-.(!4*' A&3' .2&.' &3' &<&3!3',/(' 206&4' D4/A;*1>*' .2*' /4;5' .2!4>3' (*&;' &41' .(0*' &(*' /0(' 3*43&.!/43' 4/.' .2*' *0.*(4&;' /<K*-.3' .2&.' 7(/10-*' .2*6' .2&.' .2*' &!6' /,' ;!,*' !3' A2&.' &;' ;!=!4>' .2!4>3' 3.(!=*' &,.*(' 7;*&30(*' &41' .2&.' "=!(.0*' !3' /4;5' 3/' ,&(' &' >//1' .2!4>' &3' !.' .*413' ./' .2*' 7(/10-.!/4' /,' 7;*&30(*' 2*' A!3*' 6&4' 32/A3' 2!3' "A!31/6' !4' >/=*(4!4>' 2!3' 1*F 3!(*3' 6*4.&;' .(&!4!4>' !41**1' <*!4>' .2*' /4;5' .2!4>' A2!-2' -&4' :0&;!,5' 03' ,/(' (*&;' *4K/56*4.' 4' 7;*&30(*' .2*(*' !3' 4/' 1!,,*(F *4-*' /,' D!41' /4;5' /,' 1*>(**' &41' 10(&.!/4' (!3.!7703' A(!.!4>3' 3**6' ./' 2&=*' 1!3&7F 7*&(*1' *&(;5'' ,!=*' ;*..*(3' !4' .2*' /(!- 1!&;*-.' A2!-2' 2&=*' -/6*' 1/"A4' 041*(' 2!3' 4&6*' &(*' 041/0<.*1;5' 370(!/03 (!3.1<0;03' ' (**D' 2!3./(!&4' A2/' !4' 2!3' 5/0.2' &--/67&4!*1' ;*0&41*(' .2*' (&.' /4' 2!3' -&67&!>43' 4' 2!3' *!>2.5",!,.2' 5*&(' A2*4' ;!=!4>' &.' &33&41(*&' !4' 2(&-*' 2*' A(/.*' &' A/(D' 07/4' ;*0&41*(' !4' A2!-2' 2*' (*-/(1*1' 2!3' -&(*,0;' /<3*(=&.!/43' /4' >*/F >(&725' *.24/>(&725' &41' 4&.0(&;' 3-!*4-*' 2*' </!D' !3' 2!>2;5' 7(&!3*1' ,/(' !.3' .(03.F A/(.2!4*33' <0.' /4;5' ,(&>6*4.3' /,' !.' 2&=*' (*&-2*1' 03' *' &41' ./;*65' A*(*' .2*' -2!*,'&0.2/(!.!*3',/(' ((!&43' " (!3.1-;*3' 8$9' ' (**D' &(.!3.' &41' ;!D*' 2!3' </(/.2*(' 4&-203' &3-0;7./('!4'<(/4Q*' &.' !-5/4' *' ,;/0(!32*1' &</0.' CRN' 4 ' &41' ,/041*1' &' 3-2//;' &.' !-5/4'.2&.' ;&3.*1',/(' &' ;/7>' .!6*' 8@9' 2*(*' A&3' &4' .2*4!&4' 3-0;7./(' /,' .2*' 3&6*' 4&6*' &41' /,' .2*' 3&6*' 7*(!/1' &0.2/(' /,' &' (*;!*,' D4/A4' &3' +(' (" "' ' /4*' /,' /0(' /;1*3.' 6/40F 6*4.3' /,' ..!-'&(.' # ' -0.' 041*(' $) #((!3.14' 2*' 3*-/41' <(*&D,&3.' /,' .2*' 8C9' ' T " " ' ' (**D' (**D3' # ' . & #((!3.172 4*3' 8$9' +(' " ' A2/' ;!=*1' &.' .2*43' 4 ' CCC" RR' !3' ,&.2*(' 2!;!7703' !3' 3&!1' ./' 2&=*' <**4' 4/.' &' 4&.!=*' .2*4!&4' <0.' &' 3*..;*(' ,(/6' 2/1*3' /(' >57.' A2/' &,.*(A&(13' &-:0!(*1' .2*' -!.!F Q*432!7' /A*=*(' .2!3' 6&5' <*' .2*' 1*F 6&>/>0*' ; /4' A2/3*' 1!37;*&30(*' (!3./F 72&4*3' 2&1' !4-0((*1' .(!*1' ./' -&;;' !4' :0*3F .!/4' 2!3' (!>2.' ./' .2*' -!.!Q*432!7' !3',!(3.' -/6*15' -&6*' /0.' !4' ' C@U' <0.' A&3' 4/.' 7*(,/(6*1'041*('2!3'/"A4'4&6*'<*-&03*'/,'2!3' 5/0.2'' &41' 3*=*(&;' 6/(*' /,' 2!3' 7;&53' A*(*' <(/0>2.' /4' .2:' 3.&>*' <5' &;;!3.(J.03' &41' 2!;/4!1*3' .!;;' !4' C@C' 2*' <(/0>2.' /0.' .2*' " 1(' !4' 2!3' /A4' 7*(3/4' /(.5",/0(' /,' 2!3' 7;&53' A*(*' D4/A4' !4' &4.!:0!.5' .2/0>2' ,/0(' /,' .2*6' A*(*' -/43!1*(*1' 1/0<.,0;' ' .2*3*' A*' 7/33*33' *;*=*4' .2*' /4;5' -/6F 7;*.*' (**D' -/6*1!*3' A2!-2' 2&=*' 30(=!=*1' <*3!1*3' .2*' .!.;*3' &41' 406*(/03',(&>6*4.3' /,' .A*4.5"3!0' /.2*(3' 2*' *;*=*4' &(*' 8$9' +(' (" ' A2!-2' >&!4*1' 2!6' .2*' =!-./(5'/=*(' (&.;403' &41' 07/;!3' 4 ' C@V' A(!..*4' 10(!4>' .2*' >(*&.' *;/7/44*3!&4' A&(' ./' !410-*' .2*' .2*4!&43' ./' 6&D*' 7*&-*' 8@9' +(' " 1(' 6*4.!/4*1' &</=*' 4 ' C@C' &;3/' -(/A4*1' A!.2' .2*' ,!(3.' 7(!Q*' &!6*1' 1!(*-.;5' &>&!43.' ;*/4' 8 9' +(' $ ' 4 ' C@ ' 2!3' 6/3.' ,&6/03' &41' !4' 2!3' /"=4 /7!4!/4' 2!3' 6/3.' 30--*33,0;' 7!*-*' .2/0>2' A2*4' 7;&5*1' !.' /4;5' A/4' .2*' .2!(1' 7(!Q*' *' 2&=*' !.' /4;5' !4' &' 3*-/41' &41' &77&(*4.;5' 04,!4!32*1' *1!.!/4' .' !3' 1!(*-.*1' &>&!43.' .2*' 7*(4!-!/03' !4,;0*4-*' /,' .2*' /72!3.3' &3' .2*' (*7(*3*4.&.!=*' /,' A2/6' /(-(&.*3' !3

%*&1*(I /4 &--/04. /, 2!3 2&<!. /, !4-*33&4. !.015 /67&(!4> 2!6 A!.2]*4 -(.*3 ;* (*6&(D*1 .2&. .2* /4* A&4.*1 &370(2* /.2*(& <(!1;* 4 .2* /.2*(2&41 b (!3./.;* !4 /4* /, 2!3 A(!.!4>3 -/6<&.!4> ;!3 ,/(6*(6&3.*(3 .2*/(5 /, !1*&3 ;&53 ./A4 .2* 6&0!6 .2&. ,(!*4132!7 *37*-!&;;5 6/4> 72!;/3/72*(3 603. 4/. <* &;;/A*1 ./ 1*;&.* .2* 3&4-.!.5 /, .(0.2 &41 !4 &,(&>" 4*4. /, &4 *;*>5 2* -&;;3 ;&./.2* ,!(3.6&4 =2/ 32/A*1 !4 A/(1 &41 1**1 2/A &6&4 3 ./ <*-/6* >//1 &41 2&775

,.*(;&./ 2&1 2&41*1 /=*(2!3 3-2//;./ <!3 3!3.*(3 3/4 7*03!7703 (!3./.;* :0!..*1 -/4.!40*1 .!;; 2!3 1*&.2 ./ (*37*-. &41 ;/=* 2!6 .2/0>2 .2* &,,&!(/, &;;!3.2`4*3 # /--&3!/4*1 3/6* -//;4*33 <*.A**4 .2*6 2*4 .2* D!4>041*(.//D 2!3 *07*1!.!/4 !4 3!& (!3./.;* <*.//D 2!63*;, /4 * 6/(* ./ .2*43 &41 .&0>2. ,/(.2!(.**4 5*&(3!4.2* 564 306 -&;;*1 .2* ; : @ 4 .2* 6/(4!4>3 2* /4=*(3*1 A!.2 2!3 6&.0(*(707!;3 /4 .2* 2!>2*(7(/<;*63 /, 72!;/3/725 A&;D!4> 7 &41 1/A4 .2*a 32&15 &=*40*3 ,(/6 A2!-2 7(&-.!-* .2* 3-2//;* (*-*!=*1 .2* 4&6* /, 4 .2* *=*4!4>3 2* 1*;!=*(*1 -/0(3*3 /, ;*-.0(*3 /4 72!;/3/725 &41 (2*./(!- ./ &;&(>*(&01!*4-* ,.*(;*0&41*(3 1*&.2 A2*4 &;; &12*(*4.3 /, .2* &-F 1/4!&4 307(*6&-5 *(* 7*(3*-0.*1 %&. .2*43 &-*(.&!4 *6 72!;03 <(/0>2. &>&!43. 2!6 &-2&(>* /, !67!*.5 A2*(*F 07/4 (!3./.;* H ./ 3&=* .2* .2*4!&43 ,(/6 3!44!4>& 3*-/41 .!6* &>&!43. 72!;/F 3/725 3/ 2* !3 (*7/(.*1 ./ 2&=* 3&!1 &;;01!4> ./ .2* ,&.* /, /-(&.*3 [(*.!(*1 ./ 2& -!3 !4 0</*& 2*(* 2* 1!*1 ;&.* !4 .2* 3066*(/, .2* 4*0. 5*&(@@ , .2* =*(5 406*(/03 A(!.!4>3 /, (!3./.;* 3/6* A*(* -/67/3*1 !4 & 7/70;&(/.2*(3 !4 & 3-!*4.!,!- ,/(6 -/43!1*(&<;* 406<*(/, .2* ;&..*(D!41 2&=* - 6*1/A4 ./ 03 <0. /, .2* ,/(6*(A2!-2 A*(* (!..*4 !4 .2* ,/(6 /, 1!&;/>0*3 /4;5 & ,*A ,(&>6*4.3 2* .(!-.;5 3-!*4.!,!- A/(D3 6&5 <* -;&33*1 &--/(1!4>./ .2*!(-/4.*4.3 &3 .2*5 .(*&. /, />!- *.&7253!-3 &.0(&; ;!*4** /(.2!-3 $ 2*3* /4 (A*(* -/67(*2*41*1 <5 .2* ;&.*((!3./.*;!&43 041*(.2* 4&6* /, : 8H !43.(0F 6*4.I9 <*-&03* .2*5 .(*&. /, *.2/1 .2* !43.(06*4. /, (*3*&(-2 2*5 !4F -;01* .2* $ 1 /4 .2* ,041&6*4.&; ,/(63 /, !1*&3 .2* 5 '" $" /4 .2* 1/-.(!4*/, .2* K01>6*4. &41 /4 .2* 7(/7/3!.!/4 !67/(.&4. &3&4 &0.2/(!.5 /4 72!;/3/72!-&; .*(6!4/;/>5 .2* " : , " &41 , *&-2 !4 .A <//D3 .2* ,/(6*(/4 .2* 35;;/>!36 .2* ;&..*(/4 1*6/43.(&.!/4 1*,!4!.!/4 &41 1!3.(!<0.!/4 .2* + !4 *!>2. </!23 /4 1!&;*-.!-! 4F ,*(*4-*3 8.2/3* /, 7(/<&<!;!.59 /4 (.2* ,&;;&-!*3 /, 3/72!3.3 &41 .2*!(3/ !" .!/4 [8@9 2* 0 * (43 .2*5 A*(* -&;;*1 <5 ;&.* A(!.*(3 !4 ,/0(.**4 </!D3 -/43!3. /, /4* -/44*-.*1 .(*&.!3* &41 3*=*(&; 32/(.*(*33&53 /4 A2&. (!3./.;* 2!63*;, -&;;3 H ,!(3. 72!;/3/725 I .2* 1/-.(!4* /, *!4>!4 !.3*;, &41 .2* 0;.!6&.* >(/0413 /, *!4>" & A/(D ;*,. 04,!4!32*1 <5 (!3./.;*

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35-2/;/>5' 2*' A&3'.2*' ,!(3.'./' &..*67.' &' !3./(5' /,' 2!;/3/725'&41' /,'.2*' ,/(63'/,' >/=*(466*4.'.2*4'*0!3.!4>' !3'6*.2/1'/,' A2!-2' 2*' 603.'<*' -/43!1*(*1'.2*' -(*&./('!3' -(!.!-&;'&41'*67!(!-&;'&.'/4-*' 4'&;;'-&3*3' 2*' 3.&(.3',(/6',&-.3'A2!-2' 2*' -/;;*-.3'3!,.3' &41' >(/073'&3' -/67;*.*;5'&3' 2*' -&4'3/' &3' ./'>*.'3/6*' >*4*(&;';*&1!4>'7/!4.3'/,' =!*A' &41' A!.2' .2*' 2*;7' /,' .2*3*' ./' &((!=*'&.' & 353.*6&.!-'&((&4>*6*4.'/,' .2*' 30<K*-.' &41' &D4/A;*1>*' /,' !.3' !46/3.'<*!4>' !.3' -&03*' /('./'2!6'.2*' &03*'!3'.2*' *33*4.!&;'7&(.'/,' D4/A;*1>*'&41'.2*'72!;/3/725'.2&.'3*&(-2*3' !4./' 0;.!6&.*' -&03*3',/(' .2*' 6*(*' 3&D*' /,' D4/A!4>'!3'.2*' <*3.'&41',(**3.'3-!*4-*

2*' ,/(6'/,' (!3./.;*3' A/(D3'!3'<5'4/' 6*&43' *:0&;' ./' .2*!(' -/4.*4.3' ,' .2*' <*&0.!,0;' 2&(6/45' <*.A**4'3.5;*' &41' 30<F K*-.' .2&.' 3/' -2&(63'03'!4' ;&./' .2*(*' !3' 4/.' &' .(&-*' !4' (!3./.;*' 2!3' 6&44*(' /,' *07(*33!/4' .2/0>2'3-!*4.!,!-&;;5'*0&-.';&-D3' ,;&=/0(' &(.' &41' *;*>&4-*' 0.' /,' *0&-.' 3-!*4.!,!-'.*(6!4/;/>5'2*'!3'.2*'.(0*',/041*(' 2*4'.2*' &4-!*4.3' -*;*<(&.*' .2*' H>/;1*4' 3.(*&61' /,' 2!3'A(!.!4>' .2*' /7!4!/4' -&4' /4;5'(*,*(' ./' 2!3';/3.'7/70;&(' A/(D3

(!3./.;*3' 7*(3/4&;!.5'!3' /4*' /,' .2/3*' A2!-2' 2&=*' &,,*-.*1' .2*' 2!3./(5' /,' .2*' A/(;1' !3'GA(!.!4>3';!D*' .2/3*' /,' ;&./' A*(*' ./' .2*' 2(!3.!&4'-*4.0(!*3'/,'&4.!:0!.5' &' 6/3.' 3.!60;&.!4>' !4-*4.!=*' ./' 3-!*4.!,!-' !4:0!(5" !4' .2*' !11;*' >*3' .2*5' A*(*' ,/(' .2*' 2(!3.!&4' 4&.!/43'/,' .2*' *3.'&41' .2*' (&<3' .2*' -2!*,' >0!1*' ./' 72!;/3/72!-&;' 6*.2/1" &41' !4' .2*' 7(/=!4-*' /,' ;/>!-' 2!3' &0.2/(!.5'(*6&!43'0432&D*4' ./' .2!3'1&5

(!3./0 443' ' (**D' 72!;/3/72*(' &41' 603!-!&4' &' 4&.!=*' /,' &(*4.06' &41' &' 707!;' /,' (!3./.;*' ;!=*1' &</0.' N' (' &41' A&3' &' 7(/;!,!-' A(!.*(' /4' =&(!/03' 30<K*-.3' <0.' 6/3.' 7&(.!-0;&(;5'/4' 03!-' 4' -/4F .(&3.' A!.2' .2*' 5.2&>/(*&43' A2/' (*,*((*1' *=*(5.2!4>' ./' .2*' (*;&./43' /,' 406<*(3' 2*' (*>&(1*1' 603!-' &3' ,/041*1' /4' .2*' 1!,,*(F *4-*' /,' ./4*3' &3' 7*(-*!=*1' <5' .2*' *&(' ,' 2!3' 9 " ' ' ":'.2(**' </!D3' &(*' 7(*3*(=*1' <0.' .2*5' &(*' 4*!.2*(' -/67;*.* 4/(' !4' .2*!(' /(!>!4&;' 32&7*' 4;5' &' 7&(./,' 2!3' 9 " ' '7(:(' 2&3' 30(=!=*1

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!41<!03' 4' ,(!-&4'A2/'A/4'&'2!>2' (*70.&.!/4'&3'&'6&3.*('/,'(2*./(!-'&.' !--&' !4' 06!1!&'!4'.2*'(*!>4'/,' !/-;*.!&4' *' A&3'&.',!(3.'&'2*&.2*4'&41'&4'&33&!;&4.'/,' 2(!3.!&4!.5" <0.'/4'<*-/6!4>'&' 2(!3.!&4 ./' 7(/=*' .2*' 3!4-*(!.5' /,' 2!3' -/4=*(3!/4B' 2*' A(/.*' 8&*</0.' @TV' ' .2*' *0.&4.' A/(D' ' 6 " ' 2!3'!3'&'307*(,!-!&;'&41' (2*./(!-&;'1*,*4-*'/,' 2(!3.!&4!.5'&41'&..&-D' /4' /;5.2*!36'<0.'!.'!3' ,0;'/,'!43.(0-.!/4' A!.2'(*>&(1'./'.2*'-/4.*67/(&(5'2*&.2*4!36' &41'!.3'=&(!/03'A/(32!73

((2*721(;,.'/('9 ((' 2*' .2*F 4!&4'.*(6',/('&'653.!-',*3.!=&;'!4'2/4/0('/, .2*4&'&3'>/11*33'/,'.2*',*(.!;!Q!4>'4!>2,'" 1*A' 2*;1'!4'.2*' 6/4.2'/,' -("72"(' "4' 8 04*" 0;59'!4'-/44*-.!/4'A!.2'.2*' 2' (' .' A&3' 4&6*1' &,.*('.2*' 2' (Z1*A"<*&(*(3',/0('6&!1*43'<*.A**4' 3*=*4'&41';*=*4'5*&(3'/,'&>*' A2/'A*(*' -2/3*4'5*&(;5',(/6'.2*' 2/03*3'/,'4/<;*' -!.!Q*43'&41'2&1'./'37*41'3*=*(&;'6/4.23' &.'.2*' .*67;*'/,' .2*4&'!4'.2*' -(7;!3B' &41'.&D*'7&(.'!4'!.3'3*(=!-*3' A/'/,' .2*6'2&1'.2*' .&3D'/,' -/66*4-!4>'.2*' -;/&D'/('32&A;'A2!-2'.2*'A/6*4'/,' .2*43' A/=*' &41'7(*3*4.*1'./'.2*'>/11*33'&.' .2*' &4&.2*43*&' 2*' /.2*('.A/' /4'.2*' 4!>2.' /,'.2*',*3.!=&;'(*-*!=*1',(/6'.2*'7(!*3.*33" /,' .2*4&'-*(.&!4'-/,,*(3'A!.2'04D4/A4' -/4.*4.3'A2!-2'.2*5'-&((!*1'!4'7(/-*33!/4' /4'.2*!('2*&13'./'&'4&.0(&;'>(/../'<*3!1*' .2*'.*67;*'/,'H'72(/1!.*'!4'.2*'>&(1*43 I' &41'1*;!=*(!4>'.2*'6'.2*(*'(*-*!=*1'3/6*F .2!4>'*:0&;;5'653.*(!/03'!4'*0-2&4>*'A2!-2' .2*5'-&((!*1'./'.2*'.*67;*'/4'.2*' -(/7/;!3' !.2'.2!3'-*(*6/45'.2*!('/,,-*'*07!(*1

((!&443'#A ' ' (**D'&0.2/('A2/' A(/.*' -2!*,;5'/4'72!;/3/725'&41'2!3./(5' </(4'&.' !-/6*1*&'!4' !.254!&'./A&(13'.2*' *41'/,'.2*'3.'-*4.0(5' '&41'&'707!;'/,' .2*' ./!-'72!;/3/72*(' 7!-.*.03' *';!=*1' 041*('.2*' *67*(/(3' &1(!&4' 4./4!403' !03'&41' &(-03' 0(*;!03'*4K/5!4>'&'2!>2' (*70.&.!/4',/(' -0;.0(*' &41'&<!;!.5'A2!-2' 7(/-0(*1'2!6'.2*'-!.!Q*432!7'/,' /6*' &41' .2*43'&41'2!>2',,!-*3'/,'3.&.*'30-2'&3'.2*' >/=*(4/(32!7',' &77&1/-!&'041*(' &1(!&4' $?' &41'.2*' -/430;32!7'041*(' 4F ./4!403' !3';&3.'5*&(3'A*(*' 37*4.'!4'2!3' 4&.!=*' ./A4'A2*(*' 2*',!;;*1'.2*' /,,!-*' /,' 7(!*3.'./' *6*.*('&41'1!*1'&.'&4'&1=&4-*1' &>*' (/6'.2*';!D*4*33'/,'2!3'-2&(&-.*(./' .2&.'/,'.2*',&6/03' .2*4!&4'2*' A&3'4!-DF 4&6*1'H'] 4<72/4' 04!/(I' ,'2!3'72!;/F 3/72!-&;'A/(D3'A*' 2&=*' 3.!;;'.2*',!(3.'2&;',' 8,/0('</!D39'/,'.2*' 5 ' '9 !' &';*&1!4>'&0.2/(!.5',/('.2*' .*4*.3'/,' .2&.' 72!;/3/72*('&41'.2*' ./!-&;'*.2!-3" &41'.2*' 2&41"</!D'-&;;*1'.2*'9" ("' '9 R ' &32/(.'6&40&;'/,'6/(&;!.5'A2!-2'/4' &--/04.'/,'!.3'7!.25'&41'7(&-.!-&;'7(*-*7.3' <*-&6*'&'>(*&.',&=/0(!.*' A!.2' &>&43'&41' 2(!3.!&43'2&1'&'-/66*4.&(5'A(!..*4' /4

1**(' A*(*' /,,*(*1' 07' 9 . (G ' 3' >/11*33' /,' .2*' -2&3*' 32*' 2&1' &;3/' 3/6*' !4,;0*4-*' !4' A&(' &41' .2*' 7&(.&43' <*,/(*' <&..;*' 3/0>2.' 2*(' ,&=/0(' <5' .2*' >!,.' /,' &' 32*"'>/&.' !;.!&1*3' .//' <*,/(*' .2*' <&..;*' /,' &(&.2/4' 2&1' =/A*1' ./' 2*(' &3' 6&45' >/&.3' &3' .2*(*' 32/0;1' <*' *4*6!*3',&;;*4' /4' .2*',!*;1# <0.' .2*' 406<*(' 7(/=!4>' 3/' >(*&.' .2&.' .2*' =/A' -/0;1' 4/.' <*' D*7.' ?NN' >/&.3' A*(*' 3&-(!,!-*1' &.' *&-2' &44!=*(3&(5' /,' .2*' =!-./(5'!4' .2*' 6/4.2'/,' /*1(16; 4' >&!4' 32*' A&3' 60-2' A/(32!77*1' &3' &' >/11*33' /,' .2*' "' .' 6&(54.203' !4' 0</*&' .2*' A2/;*' !3;&41' D*7.' 2/;!1&5' ./' 2*(' A!.2' 7(/F -*33!/43' &41' 7(!Q*",!>2.3' .' 045-2!&' !4' ..!-&'&.',0;;' 6//4' !4' .2*' 6/4.2'/,' 045"' -2;/4' 8 7(!;" &59' ;&(>*' (/041' ;/&=*3' /(' -&D*3' 1*-D*1' &;;' (/041' "A!.2' ;!>2.3' &3' &' 356</;' /,' 2*(' /A4' ;06!4&(5' A*(*' </(4*' !4' 7(/-*33!/4' &41' 7(*3*4.*1' ./' 2*(" &41' &.' .2*' 3&6*' .!6*' A&3' 3/;*64!Q*1' .2*' ,*3.!=&;' /,' .2*' =!-./(5' /,' &;&6!3' !4' 57(03' <*F -&03*' /4' .2&.' /--&3!/4' .2*' >/A*33' 2&1' 32/4*' !4' 2*(' ,0;;' >;/(5'/4' .2*' (**D3' 4' &4-!*4.' 32(!4*' /,' .2*' //4">/11*33' &.' (&0(/4' !4' ..!-&' A&3' 2*;1' !4' 30-2' =*4*F (&./!4' .2&.' .2*' " ' /(!>!4&;;5' &' 6*(*;5';/-&;' ,*3.!=&;' A&3' &,.*(A&(13' 6&1*' &' 70<;!-' -*(*6/45' ./' A2!-2' .2*43' !.3*;,' 3*4.' 1*70.!*3' *=*(5',!=*' 5*&(3' &41' &' 7(*-!4-.' A&3' 1*1!-&.*1' ./' H' (.*6!3' /,' (&0(/41' /4' .2*' -(7V;!3' !.3*;,' # ' 7;&4' /,';' $6)$ #(' .' .2!3' ,*&3.' .2*' >!(;3' <*.A**4' ,!=*' &41' .*4' 5*&(3' /,' &>*' -;&1' !4' 3&,,(/4" -/;/0(*1' >&(6*4.3' A*(*' -/410-.*1' <5' .2*!(' 6/.2*(3' !4' 7(/-*33!/4' ./' .2*' >/11*33' &41' -/66*41*1' ./' 2*(' -&(*' /(' (.*6!3' !3' &;3/' &' 7(/.*-.(*33' /,' 5/0.2' *37*-!&;;5' .2/3*' /,' 2*(' /A4' 3*0' 3' 30-2' 32*' 7&.(/4!Q*1' &' 0(3*3' ,*3.!=&;' &.' 7&(.&' !4' &' .*67;*' /0.3!1*' .2*' ./A4' ./' A2!-2' ;!..;*' </53' A*(*' </0>2.' <5' .2*!(' 40(3*3" A2!;*' .2*' ;/4!&43' &.' .2*!(' ' 7(*3*4.*1' 2*(' A!.2' .2*' 2&!(' /,' </53' ;6/3.' *=*(5A2*(*' 5/04>' >!(;3' (*=*(*1' .2*' =!(>!4' >/11*33' &3' .2*' >0&(1!&4' /,' .2*!(' 6&!1*4' 5*&(3' &41' <*,/(*' 6&((!&>*' .2*5' /,,*(*1' 07' ./' 2*(' &' ;/-D' /,' .2*!(' 2&!(' .2*!(' >!(1;*' &41' .2*!(' 6&!1*4' >&(6*4.' 2*' A&3' &;3/' A/(32!77*1' !4' 6&45' 7&(.3' &3' .2*' >/11*33' /,' //1' *70.*' *37*-!&;;5' !4' 5/0.23' &41' 6&!1*43' &41' A&3' (*>&(1*1' &3' &4' *4*65' /,' & ' 1!3/(1*(;5' 1/!4>3' !.2' 2*(' &..(!<0.*3' &3' .2*' >/1F 1*33' /,' .2*' 6//4' &41' &3' .2*' 7(/6/.*(' /,' 2*&;.25'1*=*;/76*4.' *37*-!&;;5'!4' .2*',*6&;*' ,(&6*' !3' -/44*-.*1' .2*' 4/.!/4' /,' 2*(' &33!3.F !4>' !4' -2!;1<!(.2' & ' 0&(' 4' *&(;5' .!6*3' 206&4' 3&-(!,!-*3' 2&1' <**4' /,,*(*1' ./' (.*6!3' ' (*;!-' /,' .2!3' A&3 .2*' 5*&(;5' -03./6' /<3*(=*1" &.' 7&(.&' /!' ,;/>>!4>' .2*' </53' .!;;' .2*5' <;*1' &.' .2*' &;.&(' /,' &' 1*!.5' 4/.' 04D4/A4' *;3*A2*(*' &41' 4&6*1' ' (' 8.2*' 07(!>2.3' 7(/</&<;5' ,(/6' 2*(' 3.!,' 7/3.0(*' !4' .2*' &4.!:0&.*1' A//1*4' !6&>*' ' .' 7&(.&' &3' !4' /.2*(' 7;&-*3' .2*' &4-!*4.' !6&>*' A&3' ;//D*1' 07/4' &3' .2*' 3&6*' A2!-2' 72!>`4!&' &41' (*3.*3' <(/0>2.' &A&5' ,(/6' &0(!*' 8.2*' (!6*&9' =!Q' .2&.' /,' .2*' + ' (" :' &' -5.2!&4' 1*!.5' A2/' A&3' !1*4.!,!*1' A!.2' (.*6!3' <*-&03*' /,' .2*' 206&4' 3&-(!F ,!-*3' -/66/4' !4' 2*(' A/(32!7' 2*' ' 9 (' .//' 3/' >(*&.;5' 2/4/6*1' <5' &;' .2*' ;/4!&43' /,' 3!&' f -.3' 0!O' @Rg' !3' 4/' (**D' 1!=!4!.5' <0.' 3!&.!-' 2!3' !3' 30,,!-!*4.;5'32/A4' <5' .2*',&-.' .2&.' *040-23' A*(*' *67;/5*1' !4' 2*(' A/(32!7" &' 7(&-.!-*' :0!.*' ,/(*!>4' ./' (**D' !1*&3' 2*' (**D' -/;/4!3.3' !1*4.!,!*1' 2*(' A!.2' .2*!(' /A4' (F .*6!3' <*-&03*' 32*' A&3' >/11*33' /,' .2*' 6//4' &41' &' 7/A*(' /,' 4&.0(*' 7(*3*4.' !4' 6/04F .&!43' A//13' &41' 6&(325' 7;&-*3' 4/0(!32F !4>' ;!,*' !4' 7;&4.3' &4!6&;3' &41' 6*4' 0.' 04;!D*' (.*6!3' 32*' A&3' 4/.' (*>&(1*1' &3' &

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=!(>!4' <0.' &3' &' 6/.2*(' &41' ,/3.*("6/.2*(' &3' !3' -;*&(;5' 32/A4' <5' .2*' 60;.!.01*' /,' <(*&3.3' !4' .2*' (01*' *,,!>5' *(' A/(32!7' ,(&4.!-' &41' ,&4&.!-&;' &,.*(' .2*' 6&44*(' /,

3!& A&3 .(&-*1 <&-D ./ .2* 6&Q/43 406<*(/,/.2*(1*!.!*3 4&.!=* ./ 3!& A&3 &;3/ A/(32!77*1 <5 .2* (**D3 041*(.2* 4&6* /, (.*6!3

(.*6!3 &77*&(3 !4 A/(D3 /,&(. &3 .2* !1*&;/,&03.*(* 6&!1*4 <*&0.5 .&;;/,3.&d .0(* A!.2</A &41 :0!=*(/4 2*(32/0;1*(G/(./(-2 !4 2*(2&41 &41 >*4*(&;;5 ;*&1!4> "/(-&((5!4> &2!41 /((!1!4> !4 &-2&(!/. 1(&A4 <5 2!413 *(-/66/4*3.-2&(&-.*(!3 .2&./,& 204.(*33 4 *&(;!*(.!6*3 .2* ,!>0(* !3 ,0;;*(&41 3.(/4>*(&41 .2* -;/.2F !4> 6/(* -/67;*.* !4 ;&.*(A/(D3 32* !3 (*7(*3*4.*1 &3 6/(* 3;*41*(&41 ;!>2.*(/, ,//. .2* 2&!(;//3* .2* 1(*33 >!(.07 2!>2 .2* ,**.7(/.*-.*1 <5 .2* (*.&4 32/* 2* 6/3.-*;*<(&.*1/,2*(*0!3.!4> 3.&.0*3 !3 .2* 5 " = #-0.9 4 .2* !1*4.!,!-&.!/4 /, (.*6!3 A!.2 .2* .&;!&4 5 " (.!;;*(5 2* 6&-2!4*3 03*1 ,/(3*41* M!4> ;&(>* 6!33!;*3 ./ &>(*&. 1!3.&4-* A*(*

.!/4 &3*./,3.(/4>*;&3.!-/(13 6&1* /, .2* 3!4*A3 /, &4!6&;3 (.2* ;/4> 2&!(/, &4!6&;3 /(/, A/6*4 2*3* A*(* 3.(*.-2*1 .!>2. &41 <*.A**4 *&-2 /, .2*6 A&3 ,!O*1 &3.(&!>2.04*;&3.!-&(6/, A//1 2* &(63 A*(* K/6*1 <5 &-"/(1 A2!-2 A&3 70;;*1 <&-D <5 &A!4-2 &77;!*1 &. .2* *41 /, .2* >(//=* 4 ;*..!4> .2!3 >/ .2* &(63 &41 A!.2 .2*6 .2* 3.(!4> &41 .2* /<K*-. !4 ,(/4./,!. A*(* 1(!=*4 ,/(A&(1 <5 .2* .A!3.!4> /, .2* =*(.!-&; -/(13 2* *,,*-.!=*4*33 /, .2* *4>!4* .203 1*7*41*1 /4 .2* 7/A*(&:1 @ /, .2* -/(13 A2!-2 6&5 <* 3&!1 (/0>2;5 ./ *07(*33 !.3 -&;!<(* 2* *4>!4*3 A*(* 1!=!1*1 !4./.A/D!413 8 9 $ /(3-/(7!/43 8,!> @9 4 .2*3* .2* >(//=* ,/(.2* 32/. A&3 2/(!Q/4.&;# &41 .2*5 7(/K*-.*1 6!33!;*3 /, ;*4>.2 &41 .2!-D4*33 =&(5!4> &--/(1!4>./.2*-&;!<(* 8@9 < 8,!> 9 A2!-2 32/. 3./4*3 <*&63 /(<&;;3 07 ./ $?@ ;<3 A*!>2. &.&4 &4>;* /, ?N 1*>(**3 2* -&;!<(* /, .2* A&3 &.;*&3. .2(** .!6*3 &3 >(*&. &3 .2&./, .2* -&.&70;. 2* &=*(&>* (&4>* /, .2* -&.&70;. A&3 &</0. R 5&(13 .2&./, .2* <&;;!3.& ,(/6 &</0. @TV ./VN 5&(13 ,.*(/43.&4.!4* A* 2*&(4/ 6/(* /, -&.&70;.3 <0. /4;5 H/, (&41 .2* " 1 2* 4/A 32/. &((/A3 &41 !3 1*3-(!<*1 *!.2*(&3 &20>* -(33"</A A!.2 &4 *;&3.!- </A /, !(/4 (&3 =!(.0&;;5 !1*4.!-&; A!.2 .2* /;1 -&.&70;. 2* 1 &;3/ -&;;*1 8,!> C9 A&3 & 3;!4> ,/(

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%3077/3*1 ./2&=* <**4 !4=*4.*1 !4 .2* &3. &41 &77*&(!4 (**-* "3!4-* CNN /(.2*(*&</0.3 2*5 &..&!4*1 .2*!(2!>2*3. %7*(,*-.!/4 !4 .2* &>* /, .2* G !&1/-2! &41 A*(* &1/7.*1 <5 .2* /6&43 &,.*(.2* 04!- A&(3 2*(* A*(* . A/ -2!*, =&(!*.!*3 </.2!6!.&.!/43 /, .2* %-(/33</A <0. .2* *;&3.!-!.5 /, .2* </A !3 *0-2&4>*1 ,/(*;&3.!" %-!.5 !4 .2* .A!3. /, .2* -/(1 " /43*:0*4.;5 &;;7!*-*3 /, 2*&=5 &(.!;;*(5 A*(* -&;;*1 <5 .2* /6&43 " 2* 6&F -2!4* -/43!3.*1 /, .2(** 7&(.3M .2* 3.&41 .2* >(//=* ,/(.2* '32/. &41 .2* &77&(&.03 (*7(*F 3*4.!4> .2* </A 2!3 -/4F 3!3.*1 /, & ,(&6* !4 .2(** %1!=!3!/43 A&3 3.,*.-2*1 !4 &"=*(.!-&; 1!(*-F

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3./4*3 .-/43!3.*1 /, & ,(&6* !4 A2!-2 A&3 ,&3.*4*1 & A//1*4 &(6 A!.2 & 3;!4> &.

.2*4 (*;*&3*1 .3.&(.*1 07 &41 6**.!4> A!.2 &-2*-D"</&(1 ,!0*1 <*2!41 .2** *4>!4* 20(;*1 .2** 3./4*3 /0. /, .2** 3;!4> 3 &

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(0;* .2** 2*&=5 &(.!:;*(5 A&3 /4;5 * 67;/5*1 !4 3!*>*3 <0. &(.!:;*(5 &--/ 67&4!*1 &(6!*3 !4 .2** ,!*;1 ,/(70(7/3*3 /, -/4:0*3. /(1*,*4-* 2** ;*>!/43 &41 .2** -/2/(.3 /, .2** (3*./(!&4 0&(1 2&1 .2*!(/A4 &(.!;F ;*(5 41 &. .2** *41 /, .2** C.2 -*4.0(5 *=*(5 " !4 .2** ;*>!/4 2&1 & (/ , .2** ;&.*(D!41 1(&A4 /4 A2**;3 <5 60;*3 & &41 3*(=*1 <5 *;*=*4 6*4 =*(5 -/2/(. 2&1 &4 " 1 -&((!*1 /4 & -&(. 1(&A4 <5 .A/ /0*4 6 3!&403 *33!43 &.!4 >(&6 6&(!&4 A2/ ;!=*1 &</0. TV &41 6&1** &4 &;72&<*.!-&; -/;;*-.!/4 ,/(3-2//; 03** /, A/(13 .2&. &16!./ =&(!/03 -/43.(0-.!/43 A!.2 *0&67;*3 ,(/6 *(>!; &;;03. *(*4-** &41 !-*(/ 041*(.2** .!.;** 9- 9 V " " (5&; (#A LO .2** ,!*;139 2** &.!4 4&6** ,/(& -/;;*>** /, 7(!*3.3 -/43!3.!4>* /, .A*;=** ;!,*"6*6<*(3 A2/ 7*(,/(6*1 .2** A/(32!7 /, 5 5 & >/11*33 4/. /.2*(A!3** 6*4.!/4*1 <0. 7(/<F &<;5 !1*4.!-&; A!.2 .2** /;1 /6&4 >/11*33 /, -/(4,!*;13 --& &(*4.!& A2/ &;3/ !3 3&!1 ./ 2&=** ,/041*1 .2!3 ,(&.*(4!.5 0(6/(** &--0(&.** D4/A;*1>** /, !. A** /A** ./ !.3 &440&; (*7/(.3 !43-(!<*1 /4 .2** 6&(<;** .&<;*.3 4!4*.5"3!0 !4 406<*(A2!-2 2&=** <**4 10> 07 8$VUN"$R?T9 /4 .2** 3!.** /, !.3 6**.!4>"7;&-* & >(/=** &. .2** ,!,.2 6!;*F 3./4** ,(/6 /6* &41 A2!-2 *0.*41 ,(/6 $C("@C$ </0. !.3 -/41!.!/4 04B*(.2** *70<;!- A** 2&=** 4/ !4,/(6&.!/4" <0. 041*(.2** 67!(** !.3 6*6<*(3 A*(** 7*(3/43 /, .2** 2!>2*3. (&4D 2** *67*(/(3 .2*6F 3*;=*3 <6/4>*1 ./ !. *!.2*(&3 /(1!4&(5 6*6<*(3 /(! , .2** 406<*(3 A*(** ,!;;*1 47 &3 *0.(&/(1!4&!5 2** *;*-.!/4 A&3 <5 -/"/7.&.!/4 /4 .2** 6/.!/4 /, .2** 7(*3!1*4. & 1 A2/ 2!63*;, ./>*.2*(A!.2 & " A&3 *;*-.*1 ,/(/4** 5*&(" .2*!(<&1>** A&3 & A2!.** ,!;;*. &41 & A(*&.2 /, *&(3 /, -/(4 2** (=&;*3 2*;1 .2*!(-2!*, ,*3.!=&; /4 .2(** 1&53 !4 &5 /4 .2** $3. &41 (1 !4 /6** /4 .2** @41 !4 .2** >(/=** A!.2 & 2!>2;5 -/67;!-&.*1 -*(*6/4!&; !4F -;01!4>* & 1&4-** !4 .2** .*67;** /, .2** >/1F 1*33 ./ A2!-2 .2*5 3&4> .2** A(!..*4 .*0. /, & 2564 3/ &4.!:0&.*1 .2&. !.3 6*&4!4> -/0;1 3-&(-*;5 <** 041*(3./1 2!3 : " !4 A2!-2 .2** (*3 &41 &(3 &(** !4=/D*1 !3 /4** /, .2** /;1*3. 6/406*4.3 A** 7/33*33 /, .2** &.!4 ./4>0* 6/4>3. /.2*(10.!*3 /, .2!3 7(!*3.2//1 32/0;1 *3F 7*-!&;;5 <** 6*4.!/4*1 .2** *07!&./(5 3&-(!F ,!-*3 !4 .2** >(/=** 2*3** 2&1 ./ <** /,,*(*1 !, &45 1&6&>** 2&1 <**4 1/4** ./ !. .2(/0>2 .2** <(*&D!4> /, & </0>2 .2** 3.(/D** /, ;!>2.F 4!4> /(/.2*(30-2 -&03*3 /(&>&!4 !, &45 ;&</0(2&1 <**4 7*(,/(6*1 !4 !. .2/0>2 *=*(3/ 4*-*33&(5 *37*-!&;;5 !, !(/4 .//;3 2&1 <**4 3*1 2** (=&; <(/.2*(3 2&1 &;3/ ./ /,,*(3/;* 64 =/A3 /4 <*2&;, /, .2** 67*(!&; /03** </.2 3.&.*1;5 /4 &40&(5 (1 &41 /4 *0.(&/(1!4&(5 /--&3!/43 &41 A*(** </041 ./ ,0;,!;.2*6 3 4 &.!4 3!>4!,!*3 &45 04!. A2!-2 1*.*(6!4*3 .2** =&;0** /, ,(&-.!/4&; :0&4.!.!*3 !4 -/!43 A*!>2.3 &41 6*&30(*3 /(!4.*(*3. !42*(!.&4-** &41 .2** ;!D** 2** &3 1!=!1*1 10/1*-!6&;;5 !4./ " @ 2*

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./ 3;**7 !4 .2* 3&-(*1 <0!;1!4> !4 A2!-2
.2*(* 3/6*.!6*3 3.//1 &3 6!>2.2 <* *0F
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37-!&;;5 406*(/03 !4 .2* *;/7/44*303
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-/6<&.3 A&3 2*;1 !4 2!3 2/4/0(' *=*(5 ,!=*
5*&(3 *0.!4 *3.!6&.!/4 3.//1 .2* .*67;*

&.' *(>&603' &' -/;/45' ,(/6' 7!1&!!(03" .2&.' /,' (!--&' !4' 2*33&;5' *4K/5*1' &' (*F 70.&.!/4' /,' ;/4>' 3.&41!4>' &41' !4' .2*' !3;&413' .2&.' /,' /3' .2*' <!(.27;&-*' /,' .2*' 7253!-!&4' !771-(&.*3

.' /6*' .2*' A/(32!7' /,' .2*' 1*!.5' .2*(*' -&;;*1'89 'A&3'!4.(/10-*1'<5'/(1*(' /,' .2*' !<5;;!4*' </!D3'/4' /--&3!/4' /,' .2*' 7;&>0*' /,' @T ' '&41'.2*'>/1'A&3'<(/0>2.' ,(/6' 7!1&0(03' !4' .2*' 32&7*' /,' &' 34&D*' /(' !4' .2*' ,/(6' /,' &' 34&D*' .2*' 3556</;' /,' (*K0=*4*3-*4-*' &41' /,' 7(/72*-5' 2*' A&3' A/4.' ./' (*=*&;' 2!63*;,' &41' 34&D*3' A*(*' &--/(1!4>;5' D*7.' !4' 2!3' .*67;*3' *' 2&1' &' 3&4-.0&(5' &41' &' 60-2' ,(*:0*4.*1' 3&4&F ./(!06' /4' .2*' !3;&41' !4' .2*' !<*(' !.2' 2!6' A*(*' A/(32!77*1' 2!3' A!,*' 9 " '8_' 3//.2*(9' 2!3' .A/' 3/43' 6*4.!/4*1' &</=*' &41' 3*=*(&;' 1&0>2.*(3' *37*-!&;;5' : ' K' &;3/' + ('8_,0;4*33"<(!4>*(9' .2*' 1*!.5' /,' *-/=*(5' A2/' A&3' 7!-.0(*1' &3' &' </5' 4' ;&.*(' .!6*3' 3-;*7!03' A&3' /,.*4'-/4,/041*1'A!.2'.2*' >57.!&4' *(&7!3' *' !3' &6/4>' .2*' 6/3.' ,&=/0(!.*' 30<K*-.3' /,' &4-!*4.' &(.' &.' 3*=*(&;' 7;&-*3' A2*(*' 2*' A&3' A/(32!77*1' 2*' 2&1' 3.&.0*3' /,' >/;1' &41' !=/(5' *' !3' -/66/4;5' (*7(*3*4.*1' A!.2' &' <*&(1' &41' (*3*6<;!4>' L*03' <0.' A!.2' &' 6!;1*(' &37*-.' 3/6*.!6*3' A!.2' *;*3" 72/(/3' !4' &' .2!-D' =*!;' /(' ;!..;*' 5>!*!&' &.' 2!3' 3!1*" 2!3' 030&;' &..(!<0.*' !3' &' 3.&,' A!.2' &' 3*(7*4.' -/!;*1' (/041' !.' 2*' -/-D' A&3' 3&-(!,!-*1'./'2!6

3-/4;03' >1,&403' &T " ' &' /6&4' >(&66&(!&4' &41' 2!3./(!&4'7(/<&<;5'</(4'&.' &.&=!06'&</0.' .2*' 5*&(' ' ' *' ;!=*1' ;&..*(;5' &.' /6*' A2*(*' 2*' *4K/5*1' .2*' ,&=/0(' /,' 6*4' !4' 2!>2' 7;&-*' 0(!4>' .2*' (*!>43' /,' ;&01!03' &41' *(/' 2&=!4>' -&(*F ,0;;53.01!*1'.2*' ;!.*(&.0(*' /,' .2*' !-*(/4!&4' &>*' &41'&=&!;!4>'2!63*;,' /,' 3.&.*"7&7*(3'.2*4' *0!3.!4>'2*' -/67/3*1',/(' .2*' 03*' /,' 2!3' /A4' 3/43' 2!3' =&;0&<;*' 2!3./(!-&;' $ " ' "' $ D ' " ' /,' A2!-2' /4;5' .2/3*' /4' ,!=*' /(&./!/43' &'"' , " ' ' ' ' , ' " ' ' $ " ' ' '"' I1 ' $ " ' &(*' 7(*3*(=*1' 04,/(.04&.*;5' !4' &' =*(5',(&>F 6*4.&(5'-/41!./4' 2*' -/66*4.&(!*3' /4' .2*' *((!4*' (&./!/43' A2!-2' <*&(' 2!3' 4&6*' <*;/4>' 7(/<&<;5' ./' .2*' C.2' -*4.0(5' 2*5' .(*&.' -2!*,;5' /,' >(&66&.!-&;' 7/!4.3' /' /.2*(' A/(D3'<5' 3-/4!03' 2&=*' 30(=!=*1' *' 1!*1' &,.*(' .A*;=*' 5*&(3'<;!414*33'&</0.' RR'

3*;;!1'8 ' *67(/4!039' ' /6&4'&44&F ;!3.' '

3;4!43' /;;;1' 8 <!!039' ' -*;*<(&.*1' /6&4'7/*.'/(&./('&41'2!3./(!&4' *' A&3' </(4' -' UV' &41' 6&1*' 2! ',!(3.' 70<;!-'&7F 7*&(&4-*' <5' <(!4>!4>' &4' !67*&-26*4.' !4' -' P' !4' .2*' !=!;' &(3' 2*' ,/0>2.' /4' 3*3&(3' 3!1*' &.' 2&(3&;03' &41' !4' ,(!-&' &41' 7&!4' ,.*(' .2*' 60(1*(' /,' 3*3&(' 2*' &.',!(3.'!4-;!4*1'./'.2*' *70<;!-&43'<0.' !4' 'C 'K/!4*1' 4./45' &41' /4' .2*' <(*&D"07' /,' .2*' (!06=!(&.*' /<.&!4*1' &;;!&' (&43" 7&1&4&',/(' 2!3' 7(/=!4-*' 4' .2*' (*1!3F .(!<0.!/4' /,' ;&413' .2*(*' 2*' 3&=*1' .2*' 7/*.' *(>!;3' 7&.*(4&;' *3.&.*' ,&(' .!6' ,.*(' 4*>/.!&.!4>' .2*' *&-*' /,' (041!3!46' <*.A**4' 4./45' &41' -.&=!&4' -'PE' 2*' <*-&6*'-/430;'!4'PU'-/4:0*(*1'.2*' &(.2!4!' !4' &;6&.!&'!4' T' &41'-*;*<(&.*1'&.(!0672' *' .2*4' (*.!(*1',(/6' 7/;!.!-&;' ;!,*' &41' 1*=/.*1' 2!63*;,' ./' .2*' &1=&4-*6*4.' /,' ;*&(4!4>' *' 3*(=*1'.2*'-&03*'/,';!.*(&.0(*' 4/.'/4;5'<5'2!3'/A4'A(!.!4>3'<0.'<5'3*..!4>' 07'.2*',!(3.'70<;!-';!<(&(5'&.' /6*' &41' <5' !4.(/10-!4>'.2*'-03./6'/,'(*&1!4>'4*A'A/(D3' &;/01'./' &' -!(-;*' /,' *07*(.3'<*,/(*'70<;!-&F .!/4' &' $ &(' *' A&3' 2!63*;,' &' 3.*(4'-(!.!-' /,' /.2*(3' &3' A*' 3**' <5' 2!3' 3.(!-.0(*3' /4' !-*(/' &;;03.' &41' !=5' .2/0>2' !.' A&3' (*6&(D*1'.2&.' 2*' A&3' 4/.' &;A&53' 3/' 3*=*(*' 07/4' 2!63*;,' *' A&3' *37*-!&;;5'-*;*<(&.*1'&3' &4' /(&./(' 5*.' 2!3' 37**-2*3' !4' 37!.*' /,' -&(*,0;' 7(*7&(&.!/4' A*(*' 1*=/!1'/,' *;*>&4-*' &41' &3' S0!4.!;!&4' (*6&(D3' 6!>2.' <*' 3077/3*1' ./' 2&=*' <&*4' A(!..*4'&'-*4.0(5'*&(;!*(' .2&4' !-*(/3' *' A(/.*' .(&>*1!*3' &;3/' !4' A2!-2' .2*' 3&6*' 3.!,,4*33' &41' 1(54*33' &(*' -/67;&!4*1' /,' 41' 2*' -/67/3*1' &' 2!3./(5' /,' .2*' !=!;' &(3' !4' 3*=*4.**4' </!D3' ,(/6' .2*' ,!(3.' (!06=!(&.*' ./'.2*' <&..;*' /,' 2!;!77!'A2!-2' 3**63' 4/.' ./' 2&=*' <**4' 70<;!32*1' !4' &' -/67;*.*' ,/(6' .!;;' &,.*(' 2!3' 1*&.2' /.' /4*' /,' 2!3' A/(D3' 2&3' 30(=!=*1' f 2*' 2!3F ./(5'/,' 63&(3' ,(!-&4' -&67&!>4' ' ' 2&3' (*-*4.;5' <**4' &#..(!<0.*1' ./' 2!6' <0.' /4' !430,;' -!*4.' >(/0413' g' *' 1!*1' FU'5*&(3';/1'& " '<

3-1;!&' 2*' 3*-/41' 1&5' /,' .2*' (0(&;' 5 ": '& 2

37!3' 2*' (**D'4&6*',/('&;/4>' 2!*;1' 8 /(',0(.2*('!4,/(6&./4' '$

33!(&-03'3/4' /,' (/3'&41',/041*(' /,' .2*' -/;;&.*(&;'!4*' ./' A2!-2' 4-2;3`3' &41' 4*&3' <*;/4>' !4' .2*' (/5&;' 2/03*' /,' (/5' &$ '

33!>4&.!/' 2*' &.!4' .*(6' ,/(' .2*' &33!>46*4.' /,' 70<;!-';&413'./'3!4>;*' -!.!Q*43' /(' ./' -/;/4!*3' ' " ' &41' '

3. (!&'1&0>2.*('/,'.2*' !.&4' /*03'&41' .2*' !.&4!1' 2/*<*' 3!3.*(' /,' `. ' &41' 6/.2*('/,' *- .*'<5' *(3*3'3/4',/,'.2*' !.&4' (!03' 2*' !3'3&!1'./'2&=*' .0(4*1'!4./'&4

:-'8_':0&!;9'&41' 7;04>*1' !4./' .2*' 3*&'./'
3-&7' .2*' ;/=*' /,' L*03' ,.*(' 2*(' .2*'
3;&41' /,' *;/3' A&3' 4&6*1' '&41'
.2*4' : .!;;' !.' (*-*!=*1' !.3' /(1!4&(5'
4&6*

3.(&*&'8_'3.&("6&!1*49' A&3' 1&0>2.*(' /,'
3.(&*03' &41' /3' /(' &--/(1!7>' ./' &4/.2*('
&--/04.' /,' L*03' &41' 2 6!3' &41' &3' 30-2'
A&3'!1*4.!,!*1'A!.2' !D*' # !'/ ' 2*'
;!=*1' &6/4>' 6*4' !4' .2*' >/;1*4' &>*' &41'
!4' .2*' <(&Q*4'&>*' A&3' .2*';&3.'/,' .2*'>/13'
./' A!.21(&A'!4./' .2*' 3D5' A2*(*' 32*' 32!4*3'
&3' .2*' -/43.*;;&.!/4'/,' .2*' !(>!4' A!.2' 2*('
3-&;*3' &41' 3.&((5'-(/A4

3.(3*03'8_3.&("6&49' 3/4'/,' .2*' !.&4'
(!03' &41' 0(5<;&' ,&.2*(' <5' /3'/,' .2*'
A!413' (>*3.>3' L>725(03' ?(?&3' &41'
.03' &3' A*;;' &3' /,' */372/(03' &41' .2*'
/.2*(' 3.&(3' 4' .2*';&.*(';*>*41' 2*' !3' &;3/'
(*7(*3*4.*1'&3',&.2*(',' 3.(&*&

3.(/;/>5' &41' 3.(/4/65' A*(*' &.',!(3.'
354/456/03'*07(*33!/43'&6/4>'.2*'&4-!*4.3'
</.2' 3!>4!,5!4>'H'.2*' 3-!*4-*' /,' .2*' 3.&(3 I'
0.'&,.*(A&(13' 3.(/;/>5'-&6*'./'6*&4'.2&.'
7&(.'/,' .2*' 3-!*4-*' A2!-2' 1*&;3' A!.2' .2*'
3077/3*1' !4,;0*4-*' /,' .2*' 3.&(3' /4' .2*'
1*3.!4!*3' /,' 6*4' 6/4>' .2*' (**D3'
3.(/4/65'.2*'/(!>!4'/,' A2!-2'.2*5'.2*6F
3*;=*3' &3-(!<*1'./' .2*' 335(!&43' &<5"#
;/4!&43' &41' >57.!&43' A&3',/(' -*4.0(!*3'
.2*' 30<(*-.' /,' 72!;/3/72!-&;' 37*-0;&.!/4'
A!.2/0.' &' 30,,!-!*4.'>(/041A/(D'!4' /<3*(F
=&.!/4'<*-&03*' 6&.2*6&.!-3' &41' 6*-2&4!-3'
2&1' 4/.' (*&-2*1' .2*' (*:0!3!.*' 1*>(**' /,'
7*(,*-.!/4' 2*' ;!3.' /,' /<3*(=!4>' &3.(/F
4/6*(3' /7*43' A!.2' 9 -' /,' 4!103'!4'
.2*' ,!(3.'2&;' /,' .2*' C.2'-*4.0(5' A2/'
&330 6*1'.2&.' .2*' *&(.2' A&3' 372*(!-&;'&41'
.(!*1' ./' *07;&!4' .2*' 72*4/6*4&' /,' .2*'
2*&=*43' <5' &' -/67;!-&.*1' .2*/(5' /,' -/4F
-*4.(!-' 372*(*3' (!3./.;*' ./' 6&!4.&!4*1'
&41'7(/=*1'.2*' 372*(!-&;',/(6'/,' .2*' *&(.2'
A2!-2'2*' .//D' ./' <*' .2*' !6 6/=&<;*' -*4.(*'
/,' .2*' 04!=*(3* 3.(/4/65' A&3',!(3.'
(&!3*1'!4./' &' (*&;' 3-!*4-*' &,.*(' ' NN'&.'
2/1*3' &41' ;*0&41(!&'!4' .2*' 03*0.4'/,'
A2!-2'./A4'.2*',!(3.'/<3*(=&./(5'A&3'<0!;.'
&41' " : '&41' + ('1*.*(6!4*1'
.2*' 7;&-*3'/,' .2*',!0*1'3.&(3' A!.2' -/67K/&'
.!=*' &--0(&-5'.2/0>2'&3'5*.'A!.2'=*(5'(01*'
&77&(&.03' '>(*&.' 3.*7' !4' &1=&4-*' &3'
.&D*4'<5' ('/,' &6/3' A2/' /<F
3*(=*1' .2*' 306 6*(' 3/;3.!-*' &.' ;*0&41(!&'
!4' '@UT' 6&!4.&!4*1' .2*' *&(.2 3' (/.&.!/4'
/4' 2*(' &0!3' &41' (*=/;0.!/4' (/041' .2*' 304'
&41' 6&1*' &4' &..*67.'<5' 4/' 6*&43' -/4F
.*67.!<;*' ./' &3-*(.&!4' .2*' 3!Q*' &41' 1!3F
.&4-*' /,' .2*' 304' &41' 6//4' !3' 30--*3F
3/(' 9 (" ' &;3/' (*41*(*1' *33*4.!&;

3*(=!-*' ./' .2*' 7(/>(*33' /,' .2*' 3-!*4-*'
.203' 2*'-&6*'=*(5'4*&(' ./' 1*.*(6!4!4>'.2*'
0&-.' /<;!:0!.5' /,' .2' *-;!7.!-' 2*' .(0*'
,/041*(' /,' 3-!*4.!,!-' 3.(/4/65' &41' .2X
>(*&.*3.'!41*7*41*4.'/<3*(=*(' /,' &4.!:0!.5'
A&3' ('/,' !-R*&8!4'.2*'@41'-*4.0(K'
9' A2/' 1!3-/=*(*1' .2*' 7(*-*33!/4'/,' .2*'
*:0!4/0*3'&41'1*.*(6!4*1'.2*';*4>.2'/,'.2*'
3/;&(' 5*&('8&.' ?V 1&53' V 2/0(3' VV' $@d9' &3
A*;;'&3'.2*'.!6*'/,'.2*'6//4 3'(*=/;0.!/4'&41'
.2*'6&>4!.01*'&41'1!3.&4-*3'/,'.2*'2*&=*4;5'
</1!*3' 2*' ;&3.' !67/(.&4.' &3.(/4/6*(' /!'
&4.!:0!.5'&41'.2*'>(*&.*3.'&,.*(' !77&(-203'
!3' $ ', '8!4'.2*'@41'-*4.0(K'
9' 4'2!3'-2!*,'A/(D'-/66/4;5'D4/A;'
<5'!.3' (&<!-'4&6*'/,' 1 '2*'1!>*3.*1'
.2*'1!3-/=*(!*3'/,'2!3'7(*1*-*33/(3'*37*-!&;;5'
!77&(-203'&41' 2!3' /A4'!4./' &' ,/(6&*'
353.*6'A2!-2'7&33*1'-0((*4.'&;;' .2(/0>!'
.2*' !11;*' >*3' --/(1!4>'./'!.' .2*'*&(.;'
!3'&372*(*'(*3.!4>'6/.!/4;*33'!4' .2*' 6!112'
/,'.2*'*:0&;;5'372*(!-&;' 04!=*(3*'A2!;*' .2X
304' 6//4' 7;&4*.3'&41' ,!0*1' 3.&(3' (/;;' &'
=&(!/03' 1!3.&4-*3'&(/041'2*(

2*' /6&43' (*>&(1*1' 3.(/4/65'&3'&;'
!1;*' 37*-0;&.!/4' &41' >&=*' ;!..;*' &..*4.!/('
./' !.' 2*4' &*3&(' (*,/(6*1' .2*' /6&('
&;*41&(' 2*' 2&1' ./' <(!4>' &4' &3.(/4/6*!'
,(/6' ;*0&41(!&'8 1 " './'2*;7'2!6

3.(/;/>5'!4' .2*' 4&((/A*(' 3*43*' /,' .2Y
A/(1'6*&4!4>'7(*1!-.!/4' /4' .2*' ,&!.2' /'
3!>43' >!=*'4'<5'.2*' 3.&(3'A&3' &4' !4=*4.!/!'
/,' .2*' 2&;13*&43' ;;' <0.' 04D4/A4' .8'
.2*' (**D3'!4' .2*!(' <*3.' 1&53'!.' 1!1' 4/4'
-/6*' !4./' =/>0*' 04.!;' &,.*(' .2*' .!6*' /,'
;*0&41*(' .2*' (*&.' 4' /6*' .2*' 7(/F
,*33!/4&;'&3.(/;>*(3'A*(*'-&;;*1'$(' -'/('
(3'.2*' ;&..*(' 4&6*' (*,*((!4>' ./'
.2*' &3.(/4/6!-&;' -&;-0;&.!/43' A2!-2' .2*5'
6&1*' 4' .2*' (*70<;!-&4'7*(!/1' .2*5'A*(*'
D4/A4' <0.' 2*;1' !4' 0..*(' -/4.*67.' ;0'
$ T' .2*!(' 047/70;&(!.5' A&3' 3/' >(*&.'
.2&.' .2*5' A*(*' *07*;;*1',(/6' /6*' &41'
.&;5' 0.' !4' .2*' .0(<0;*4.' .!6*3' /,' .2*'
-!=!;' A&(3'.2*!('(*70.&.!/4'(/3*'-/43!1*(&<;5'
&41'3.!;;' 6/(*' 041*(' .2*' 67!(*' A2*4' .2*'
6/3.' *0.43!=*' 1*6&413' A*(*' 6&1*' 07/4'
.2*!(' 3-!*4-*' 2*5' A*(*' !41**1' (*F
7*&.*1;5' 1(!=*4' /0.' /,' .&;5' &41' !4=/;=*1'
!4' .(!&;3',/(' .(*&3/4&' " ' <0.' .2!3'
/4;5'*42&4-*1' .2*' -/43!1*(&.!/4' !4' A2!-2'
.2*5' A*(*' 2*;1' .2*' 6/(*' 3/' &3' .2*5' A*(*'
,(*:0*4.;5'.&D*4'!4./-/043*';<5'.2*'*67*(/(3'
&41' .2*' 6*6<*(3'/,' .2*'!67*(!&;',&6!;5' 4'
;&.*(.!6*3'&;;' .2&.' .2*' 2&;13*&43' A*(*',/(F
<!11*4'./' 1/' A&3' ./' -/430;.' .2*' 3.&(3' /4'
:0*3.!/43' (*,*((!4>' ./' .2*' *67*(/(3' ;!,*'
2!3' A&3'&'-(!6!4&;'/,,*4-*' 2*' 2(!3.!&4'
67(/(3'8<0.' 4/4*' <*,/(*' .2*6'!330*1

(*7*&.*1' 7(/2!<!.!/43 &>&!43.' &;' -/430;.&F
.!/4' /,' &3.(/;/>*(3 A2&.*=*(
4' .2*' 7(&-.!-*' /,' .2*!(' &(.' .2*5 03*1'
"-&;*41&(3 A(!..*4' /4' .&<;*.3' !4' A2!-2' A*(*'
3*.' 1/A4' ,/(' *=*(5 1&5' .2*' 6/.!/4' &41'
(*;&.!=*' 1!3.&4-*3 /,' .2*' 3.&(3' A2*.2*('
;0-D5' /(' 04;0-D5' !.2' .2*' 2*;7 /,'
&4/.2*(' 3*.' /,' .&<;*.3 .2*5 7(/-**1*1' ./'
K4&D*' .2*!(' -&;-0;&.!/43 ,/(' *=*(5 2/0(' !4'
%1*.&!;' 2*5 A/0;1',/(' !43.&4-*' 4/.*' .2*'
2/0(' /,' & 7*(3/4 3 <!(.2' &3-*(.&!4!4>' .2*'
G(*;&.!=*' 7/3!.!/4' /,' .2*' -/43.*;;&.!/4' 1/6 !F
4&4.' &.' .2*' .!6*' --/(1!4>' ./' .2!3 .2*5
%1*.*(6!4*1' .2*' ,/(.!6*3 /,' .2*' !41!=!10&;
A2/' A&3 </6' &.' .2*' 2/0(' !4' :0*3.!/4'' 4'
.2*' 3&6*' A&5' .2*5 &3-*(.&!4*1' .2*' .!6*'
,&=/0(&<;*' ./' &45 >!=*4' 041*(.&D!4>'
6/4>' .2*' ;0-D5 3.&(3 A*' 6&5 6*4.!/4
403' 07!.('&41' 04&' &.0(4'&41' &(3
A*(*' 04;0-D5' *(-0(5 A&3 ;0-D5' /('
%04;0-D5 &--/(1!4>' ./' .2*' /.2*(' -!(-06'
3.&4-*3 /,' .2*' -&3*
3.K.J4&O' /4' /,' *-./(' &41' 41(<'
6J-2*' ,.*(' .2*' ,&;;' /,' (/5 2*' A&3
".2(/A4'1/A4',(/6'.2*' A&;;' <5' .2*' (**D3'
<*-&03*' .2*' 7(/72*.' &;-2&3 2&1' 7/!4.*1'
2!6'/0.'&3 1*3.!4*1'./' <*-/6*' .2*' &=*4>*('
%/,' (/5
3.K.1J6`3' ' (**D' .(&>*1!&4' 3/4' /,'
/(3;603' & ' (!3' ,!(3.'&7F
7*&(&4-*' A&3' !4' TT' ' (' &41' 2*' A/4' .2*'
7(!Q*' ,!,.**4' .!6*3' *' "A(/.*' @CN' 7!*-*3'
<0.' &',*A'.!.;*3'&(*'&;;' .2&.'(*6&!43'/,'.2*6'
!3' 3/43 3.51&6&3' &41' 2;;<-;*3' A*(*'
B 3/'.(&>!-'7/*.3
3.K.116*!&' !,*'/,' -&3.03'/,';/;- 3'
*;*03'2&1'(*K*-.*1'2*(' &1=&4-*3'&41' 3.5'
1&6*!&' &--/(1!4>;5'3;&41*(*1'2!6'./' -&3'
,03' A2/' 6&1*' &4' &..*67.' /4' .2*' ;!,*' /,'
*;*03'./' 2*(' /"A4'1*3.(0-.!/4'&41' .2&.'/,'
2*(' 203<&41' & ' ('&41')
3.K.4 6!' 8 (' " ' 2*' .!.;*'
G9,' .*4' ,04-.!/4&(!*3' &.' .2*43' 1(&A4' &4'
60&;;5' <5' ;/.',(/6'.2*' .*4' .(!<*3' ,!=*' ,/('
.2*' -!.5' &41' ,!=*' ,/(' !(&*03' 2*5' A*(*'
&' D!41'/,'-!.5'7/;!-*' (*37/43!<;*' ,/(' D**7!4>'
.2*' 3.(**.3' -;*&4' ,/(' 1*-*4-5' &41' :0!*.'
&6/4>'.2*' 70<;!-' &41' 7(/<&<;5',/(' .2*' 7(/F
.*-.!/4'/,'<0!;1!4>3' 2*5'2&1'30-2'7/A*(3'
"/,'K0(!31!-.!/4'&3' A*(*' 4*-*33&(5'./' *4,/(-*'
.2*!(' &0.2/(!.5' ;0.*">!(;3' &41',*6&;*' 7*('
,/(6*(3/4'.2*2&(7'/('-!.2&(&'A*(*'30<K*-.'./'
.2*!('-/4.(/;' f (!3.' <43,' ' (" ' GS [
35;06' ' (**D' A/(1' 6*&4!4>' &4'
!4=!/;&<;*' (*,0>*' ,/(' 7*(3/43' ,;**!4>',(/6'
70(30!.' 6/4>'.2*' (**D3'&;;' 2/;532(!4*3'
A*(*' 35;063'&41' &45 70(30*('A2/'32/0;1'
(*6/=*'&'3077;!&4.'<5',/(-*'A&3'(*>&(1*1'&3'
"&'.(&43>(*33/('&>&!43.'.2*' >/13' 2*' .*(6

: ' A&3' *37*-!&;;5' &77;!*1' ./' 30-2'
32(!4*3' &3' 3*-0(*1'./' .2*' 3077;!&4.3' &<3/F
;0.*'3*-0(!.5'A!.2!4'.2*!(';!6!.3'A2!-2'A*(*'
/,.*4' -/43!1*(&<;*' 2*' 7(!*3.3' &41' .2*'
-/6604!.5'!4' *&-2' -&3*' A&.-2*1'K*&;/03;5'
/5*(' .2!3' (!>2.' 2*' 3&4-.0&(5' /,' L*03'
5*3*03' !4' (-&1!&' /,' /3*!1/4' !4' .2*'
!3;&41'/,' &;&0(!&'&41'/,' 7/;;/' !4' *;/3'
&(*' *0-*;;*4.' *0&67;*3' /,' 30-2' &35;063'
2*3*'3&4-.0&(!*3"A*(*'*0-*7.!/4&;;5'406*(F
/03' !4' 3!&' 4' /6*' .2*(*'A&3' &4' &35;06'
/,'>(*&.'&4.!:0!.5'3&!1'./'2&=*'<**4',/041*1'
<5' /6,!;03' !4' &' >(/=*' /,' /&D3' /4' .2*'
&7!./;!4*' !;;' . ' 1 + ' 2*'*(*-.!/4'
/,' <0!;1!4>3' !4' !.3' 4*!>2</0(2//1'>(&10&;;5'
(*41*(*1'!.'!4&--*33!<;*' 0(!4>'.2*' /6&4'
7*(!/1' .2*' (!>2.' /,' &35;06' &..&-2!4>' ./'
(**D' 3&4-.0&(!*3' &3' &.',!(3.' 6&!4.&!4*1'
&41'*=*4'-/4,!(6*1'<5' /6&4'-/6&41*(3'
0.'!.3'&<03*' ;*1' ./' &' -/43!1*(&<;*' (*10-F
.!/4' /,' .2*' 406<*(' /,' &35;063' 041*('
!<*(!03' 2*' (!>2.' /,' &35;06' A&3' 4/A'
-/4,!4*1'./'30-2'32(!4*3'&3'-/0;1',/041'.2*!('
-;&!63'07/4'&4-!*4.' .(&1!.!/4' 0(!4>'.2*'
!67*(!&;' 7*(!/1'2/A*=*(' .2*' -03./6'&(/3*'
/,' 6&D!4>'.2*' 3.&.0*3' /,' .2*' *67*(/(3' (*F
,0>*3' &>&!43.' 6/6*4.&(5' &-.3' /,' G=!/;*4-*'
(6!*3' !4' .2*' ,!*;1' 03*1' .2*' *&>;*3' /,' .2*'
;*>!/43',/(' .2*' 3&6*' 70(7/3*
..!;&4.*' ' (**!' 2*(/!4*' /,' .2*' .57*'
/,' (.*6!3' 2*(*'A*(*'.A/'3;!>2.;5'1!,,*(F
4.' =(3!/43' /,' 2*(' 3./(5' /4*' -0((*4.' !4'
(-&1!&'&41'.2*' /.2*(' !4' /*/.!&
8$9' '+ ' "' " ' .&;&4.*'
1&0>2.*(' /,' L*43' &21' ;B6B4*' A&3' *OF
7/3*1'<5'2*(',&.2*(' A2/' 2&1' 1*3!(*1' 6&;*'
/,,37(!4>'/4;5' 2*' A&3' 30-D;*1'<5'&'<*&('
04.!;' 32*' A&3',/041' &41' <(/0>2.' 07' <5' &'
7&(.5' /,' 204.*(3' 41*(' .2*!(' -&(*' 32*'
>(*A'07' ./' <*' &' 204.(*33'D**4'3A!,.' &41'
<*&0.!,0;' 2*' .//D'7&(.'!4' .2*' &;51/4!&4'
</&("204.'A&3'.2*' ,!(3.'A2/'3.(0-D'.2*'</&('
&41' (*-*!=*1',(/6' ; &>*(' .2*' 2*&1' &41'
3D!4'/,'.2*'<*&3.'&3'.2*'7(!Q*'/,'=!-./(5' &'
0 ' 2*' !3' &;3/' &33/-!&.*1' A!.2'
.2*'=/5&>*'/,'.2*' (>/4&0.3' 2*' .0(4*1' &'
1*&,' *&(' ./' .2*' *4.(*&.!*3' /,' 2*(' 406*(/03'
30!./(3'' <0.' &.' ;&3.' 32*' 7(/7!.!&.*1' .2*'
A(&.2'/,' 72(<1 .' <5'(*.0(4!4>'.2*' ,&!.2F
,0;';/=*'/,' .2*' <*&0.!,0;' !;&4!/4'A2/'2&1'
,/;;/A*1'2*(' 7*(3!3.*4.;5'&41' 30,,*(*1'&41'
3.(0>>;*1',/(' 2*(' 2*!(' 3/4' A&3' &(.2*4?"n'
73*03'/4*/,' .2*' "' 1 " '+(' &'
$ + ' ' '
8@9' +(' "' " ' .&;&4.*' A&3'
.2*' 1&0>2.*(' /,' -2/*4*03' 3/4' /,' .2 6&3'
&41' 1!3.!4>0!32*1',/(' <*&0.5'&41' 3A!,.4*33'
/,',//.' 4' /(&-;*' A&(43' 2*(' &>&!43.' 6&(F
(!&>*' &41' 32*' &--/(1!4>;5' ;!=*3' &' ;/4*;5

;!,*' !4' .2*' ,/(*3. ' 2*' 6**.3' .2*' &11(*33*3'
"/,' 2*(' 30!./(3' <5' -2&;;*4>!4>' .2* 6' ./' (&-*'
%A!.2' 2*(' /=*(.&D!4>' .2* 6' !4' .2*' (&-*' &41'
37*&(!4>' .2* 6' !4' .2*' <&-D ' 2*' !3' &.' ;*4>.2'
<*&.*4' <5' !77V6Z4 3' %A2/' 10(!4>' .2*'
(&-*' 1(/73' /4' .2*' >(/041' .2(**' >/;1*4'
&77;*3' >!=*4' 2!6' <5' 72(/1!.*' .&;&4.*'
3.//73' 1/A4' ./' 7!-D' 07' .2*' &77;*3' &41' .203'
;/3*3' .2*' (&-*' !77/6*4*3',/(>*.3' ./' (*4F
1*(' .2&4D3' ./' 72(/1!.*' &41' .2*' >/11*33'
!4' &4>*(' -&03*3' .2*' 7&!(' ./' A&41*(' !4./' &'
3&4-.0&(5'/,' 5<`;*' A2*(*' .2*5'&(*' -2&4>*1'
!4./';!/43
.&(>&.!3' ' $*&
.*' --/(1!4>' ./' /6*(' .2*' 1&0>2.*(' /,' L*03" &--/(1!4>' ./' *3!/1' /,' 9 ' /(' .(!,*' 2*' 7*(3/4!,!*3' !4,&.0&.!/4" .2*' !4,&.0&.!/4' <*!4>' >*4*(&;;5' 2*;1' ./' !67;5'
>0!;,' &3'!.3'-&03*' &41'*=!;'&3'!.3'-/43*:0*4-*'
.',!(3.' 32*' 1A*;.' /4' ;56703" <0.' &,.*(' 32*' 2&1' *4.(&77*1' L*03' 2!63*;,' !4./' 2!3'
(&32' /&.2' /4' .2*' /--&3!/4' /,' .2*' <!(.2' /,'
*(-;*3' & ' / (' 2*' 20(;*1' 2*(' 1/A4'./'*&(.2' *(*' 32*' 70(30*3' 2*(' 6!3F
3!/4' /,' *=!;' A&;D!4>' ;!>2.;5' /=*(' 6*4 3'
2*&13' <0.' 4*=*(' ./0-2!4>'.2*'>(/041' *F
2!41' 2*(' >/' .2*' ; ' 8H' (&5*(3'I9' .2*'
;&6*' A(!4D;*1' 3:0!4.!4>' 1&0>2.*(3' /,'
L*43' 2*' ; '!,'-&;;*1' 07/4' 2*&,' .2*'
20(.3'!4,;!-.*1'<5' .*" <0.'.2*5'<(!4>',(*32'
=!;'07/4'.2'3.0<</(4' 4';&.*(' .!6*3' .*'
!3'.(&43,/(6*1'!4./'&4' &=*4>*(' /,' 04(!>2.F
*/034*33';!D*' 5 ' 9 " ' &41' >
.*!43' D7;.1' &6 ' /6&4'K0(!3.'
/,' .2*' &>*' /,' 0>03.03' &41' !<*(!03' A2/'
A&3'</(4' &</0.' N' * ' &41' 1!*1' &</0.' @@'
' 4;!D*' 2!3' -/4.*67/(&(5' 4.!3.!03'
&< 1' & ' 2*' (*-/66*41*1' 2!63*;,' ./'
.2*' (0;!4>' 7/A*(3' <5' 2!3' 30<6!33!=*' &..!F
.01*' *' A&3' (*A&(1*1' <5' 6&45'./D*43'
/,' 1!3.!4-.!/4" &6/4>' /.2*(3' <5' .2*' -/4F
30;32!7' ./' A2!-2' 2*' A&3' *;*-.*1' !4' V' '
<*,/(*' &..&!4!4>' .2*' ;*>&;' &>*' 3' &'K0(!3.'
8&>&!4' 04;!D*' 4.!3.!03@' 2*' (*7(*3*4.*1' .2*'
-/43*(=&.!=*' .*41*4-5"&41' 3/' <*-&6*' .2*'
,/041*(' /,' &' 37*-!&;' 3-2//;' -&;;*1' .2*'
" " ' &,.*(' 2!3' 707!;' &3!;(!03' &<;403
.*:;&4&' 8! * ' " ' f ',&(-*'
/(' -/6*15' A2!-2' .2*' &4-!*4.3' 3077/3*1' A&3'
/(!>!4&;;5' &-.*1' /(' !4=*4.*1' &.' .2*' 3-&4'
./A4' /,' .*;;&' !4' &67&4!&' /1*(4'
3-2/;&(3'!4-;!4*'./'.2*' /7!4!/4'.2&.'!.' A&3'&'
37*-!*3'/,'" &.!4'1(&6&' (*7(*3*4.!4>'3-*4*3'
&.' .*:;&' /(' 3-*4*3' /,' -/04.(5"./A4';!,*
' .3'-2&(&-.*(!3.!-3'A*(*' 8$9'.2&.'!.' A&3'7*(F
,/(6*1'<5',(**"</6' 5/0.23' 4/.' <5' 7(/F
,*33!/4&;'&-./(3" 8@9'.2&.'-*(.&!4'-/4=*4.!/4&;'
-2&(&-.*(3'&3' . ' 8H' &.-2&73I9' 5 "Z
" ' 8H' 2*' ;0../4'I9' , ' 8H' 2*' /;1
,&.2*('I9' ' &P' 2*',//;'I9' &;A&53' /-F
-0((*1'!4'!.' 8 9' .2&.'!.' -/4.&!4*1' 70QQ;*3'
./' * 5;&!4' *!.2*(' !4' .2*' 7;/.'/(' !4' 3!4>;*'
;!4*3 9' 2*' " ' -&6*' !4./',&32!/4' &.'
/6*' &3'&,.*("7!*-*3'& \/ X&</0.'.2*' *41'
/,' .2*' (1' -*4.0(5' N' 1!37;&-!4>' .2*'
< ' & '$) ' !;;' .2*' <*>!44!4>'
/,' .2*' ;&3.' -*4.0(5' /,' .2*' *70<;!-' .2*'
" 2@ ' 7(/<&<;5' &4' !67(/=!3&.!/4"
<0.'!4'.2*' 2&413' /,' /67/4!03' /,' /4/4!&'
&41' =!03' !.' A&3' (&!3*1'./' .2*' 7/3!.!/4'
/,'&' (*>0;&(' -/6*15' /4' .2*' (**D' 6/1*;'
(/6' &</0.' .2*' 611;*' /,' .2*' $3.' -*4.0(5'
' .2*' " ' A*4.' /0.' /,' ,&32!/4' !4'
,&=/0(' /,' .2*' <0.' A&3' (*=!=*1' 7(/F
<&<;5'!4'.2*'(*!>4' /,' !<*(!03'<5'&'-*(.&!4'
066!03' .';!=*1'/4',/('3/6*'.!6*'041*('
.2*' 67!(*'.!;:' &.' ;&3.' !.' <*-&6*' 441!3"
.!4>0!32&<;*',(/6'.2*'
.2D6&3' /4'/,'! ;03'D!4>'/,' 2*33&;5'
&41' 4&(,!.*"<(/.2*('/,' (*.2*03' !357203'
&41' &;6/4*03" D!4>' /,' .2*' !453*' !4' .2*'
/*/.!&4' (-2/6 403' *'A&3'.2*' 203<&41'
/,' .2*' -;/01">/11*33' Z72`:*' 6/.2*(' /,'
2(!003' &41' *;;*' A2/' ;*,.' 2!6' /4' 2!3'
4!/4' A!.2' &' 6/(.&;' 4V' .2*' 1&0>2.*(' /,'
&1603' ń *72*;*' !4' &4>*(' =!3!.*1' .2*'
;&41' A!.2' &' 1(/0>2.' 07/4' A2!-2' 4/' *4F
1*&=/0(*1'<5' 6*&43' /,' &' 7(*.*41*1'/(&-;*'
./' 2&=*' 2*(' 3.*73/4' 2(!003'3&-(!,!-*1' /4'
.2*' &;.&(' /,'L*03' &7253.,03' 0.' *72*;*'
-/4=*5*1' .2*' -2!;1(*4' &A&5' .2(/0>2' .2*'
&!(' 4' &' >/;1*4",;*-*1' (&.*' 0(!4>' .2*'
7&33&>*' *;:*' ,*;;' !4./' .2*' 3*&' A2!-2' A&3'
&,.*(A&(13',/6'2*('4&6*'-&;:*1'.2*' *;:*3"
7/4.03' 0.' 2*(' <(/.2*('&((!=*1'3&,*;5'&.'
.2*' 7&;&-*' /,' *.*3' D!4>' /,' A2/' >&=*'
2!6' 2!3' 1&0>2.*(' 2&;-!?7Z' !4' 6&((!&>*'
,.*(A&(13' .2&6&3' A&3' 2!63*;,' &<'/0.' ./'
<*' 3&-(!,!-*1'<5' 2!3' 7*/7;*' ./' L*03' &725"
3.!03" <0.' 2*' A&3' 3&=*1'<5' .2*' &77*&(&4-*'
/,' 2(!003' 3/4' 5.!33/(03' A2/' <(/0>2.'
.2*' 4*A3'.2&.' 2(!003'A&3' 3.!;:'&;!=*' !3'
3-&7' 2/A*=*(' /4;5' <(/0>2.' 1/"A4' .2*'
A(&.2' /,' .2*' >/1' 07/4' 2!3' 1*3-*41&4.3'
2*',!(3."</(4'/'2!3'(&-*'A&3'*=*('&,.*(A&(13'
;!&<;*' ./' <*' 3&-(!,!-*1' ./' L*03' &7253.!03'
!,' 2*' *4.*(*1' .2*' -/04-!;"-2&6<*(' &41'1!1'
4/.' >*.' /0.' /,' .2*' A&5' !4' .!6*' &.*('
/4' .2&6&3' A&3' =!3!.*1' A!.2' 6&14*33' <5'
(&'<*-&03*' 4/' <(/0>2.' 07' 2*(' 4*72*A'
!/45303' .2*' 3/4' /,' 2*(' !3.*(' 6 ;*' 4'
2!3',(*4Q5'2*' D!;:*1' 2!3' 3/4' *&(-203' &41'
7*(3*-0.*1' 4/' A2/' A!.2' 2*(' /.2*(' 3/4'
;;-*(.*3' ;*&*7*1' !4./' .2*' 3*&' *(*' 32*'
<*-&6*' .2*' 3*&">/11*33' *0-S.2 &' &41' 2*('
3/4' .2*' 3*&">/1' &;3*6/4' 4' (*-/=*(!4>'
,(/6'2!3' 6&14*33' .2&6&3' &3'-/6 6&41*1'
<5'&4' /(&-;*' ./' 3*..;*' !4' &' 7;&-*' A2*(*' 2*

32/0;1'<*' 2/37!.&<;5'.(*&.*'1'<5'A!;1'<*&3.'
4' .2*' 7&(.' /,' 2*33&;5' A2!-2' A&3' 4&6*'1'
&,.*(' 2!6' .2*' .2&6&4!&4' 7;&!4' 2*' -&6*'
07/4' 3/6*' A/;=*3' A2/' ,;*'1' ,(/6' 2!6' &41'
;*,.' 2!6' .2*' 32**7"</4*3' /4' A2!-2' .2*5'
A*(*' ,**1!4>' *' 3*..;*'1' 2*(*' &41' A*11*1'
2*6!3./' # ' & ' 2*'3./(5'!3'4/'
1/0<.' ,/041*'1' 07/4' .2*' /;1' -03./6' A2!-2'
.2*' !453*' 2&1' /,' /,,*(!4>' .2*' .!(3."</(4' /,'
.2*' (&-*' /,' .2&6&3' ./' L*03' &7253.!03' !4'
-&3*' 2*' ,&!;*1' ./' 6&D*' >//1' 2!3' *3-&7*' &3'
2(!003' 1!1
.2*4&303' 8$9' 2*' *4>!4**(' &' -/4F
.*67/(&(5' /,' (-2!6*1*3' A2/' ,;/0(!32*1'
&</0.' @$N' ' *' A&3' .2*' &0.2/(' /,' &'
A/(D' 3.!;;'7(*3*(=*1' /4' *4>!4*3' /,' A&(
8@9' 2*' (**D' 3-2/;&(' &' 4&.!=*' /,' &0"
-(&.!3' !4' >57.' *' A&3' *10-&.*1'&.' ;*OF
&41(!&' A2*(*' 2*' ;!=*1'&</0.'$UN"@ N' '
,.*(' .2!3' 2*' ;!=*1' &.' /6*' &41' .2*(*'
A(/.*' 2!3' 5 " (' 8/(' H' /-./(3'&.'
' !44*('I9' !4' ,!,.**4' </!D3' ,' .2*3*' .2*'
,!(3.' 3*-/41' &41' 7&(.' /,' .2*' .2!(1' &(*'
/4;5' 7(*3*(=*1' !4' &' 3*;*-.!/4' 6&1*' !4' .2*'
$$.2' -*4.0(5' .2*' (*3.' 30(=!=*' !4' &'
./;*(&<;5'-/67;*.*' 3.&.*' 2*' A/(D'32/A3'
&3./4!32!4>';*&(4!4>' &41' -/4.&!43' &' 406F
<*(' /,' 4/.!-*3' /,' &4-!*4.' ;!,*' A2!-2' A/0;1'
/.2*(A!3*' 2&=*' <**4';/3.' 2*' &0.2/(!.5' !.2'
.2*' *0-*7.!/4' /,' .2*' .A/' >/13' K03.' 6*4F
.!/4*1' .2*(*' !3' 4/' /.2*(' 1*!.5' =2/3*'
/(!>!4&;' -2&(&-.*(' &3' &' 7/A*(' /,' 4&.0(*'
041*(A*4.' 3/' (*6&(D&<;*' &4' *.2!-&;' 1*F
=*;/76*4.' /.2' -/4-*7.!/43' /,' .2*4*'
.2*' 4&.0(&;' &41' .2*' *.2!-&;' A*(*' !4.!6&.*;5'
-/44*-.*1' !4' .2*' (*;!>!/4' /,' ..!-&' A2/3*'
-&7!.&;' .2*43' A&3' 4&6*1' &,.*(' .2*4*'
&41' A&3' .2*' 6/3.' !67/(.&4.' 3*&.' /,' 2*(
A/(32!7' .2*4*' A&3' /(!>!4&;;5'.2*' 6&!1*4'
1&0>2.*(' /,' .2*' >/1' /,' 2*&=*4" .2*' -;*&('
.(&437&(*4.' &*.2*(' A2/3*' 70(!.5' !3' &;A&53'
<(*&D!4>,/(.2'!4'04=*!;*1'<4;;!&4-5'.2(/0>2'
.2*' -;/013' .2&.' 30((/041' !.' 3' &' 1*!.5'
/,' .2*' 3D5' 32*' A!.2' L*03' !3' .2*' 6!3.(*33'
/,' .2041*(' &41' ;!>2.4!4>' !D*' L*03' 32*'
-&((!*3' .2*' 1' A!.2' .2*' (/>/4 3' 2*&1'
.2*' 356</;' /,' .2*' .*67*3.' &41' !.3' .*((/(3'
4' 6&45'3.&.0*3'&--/(1!4>;5'32*' !3'(*7(*F
3*4.*1' &3' 20(;!4>' .2*' .2041*("</;.' 0.'
32*'&;3/'3*413'1/A4 ,(/6'3D5'./'*&(.2';!>2.'
&41' A&(6.2' &41' ,(0!.,0;' 1*A' &41' A!.2'
.2*6' 7(/37*(!.5'./' ,!*;13' &41' 7;&4.3' '
A2/;*' 3*(!*3' /,' ,&<;*3' &41' 03&>*3'<*;/4>F
!4>' *37*-!&;;5'./' .2*' .2*4!&4' (*;!>!/4'
(*7(*3*4.3' 2*(' &3' .2*' 2*;7*(' &41' 7(/.*-./('
/,' &>(!-0;.0(*' 2*' .A/' 1*!.!*3' (*-2'"
.2*03' &41' (!-2.2 4!03'2/4/0(*1'!4' ..!-&'
&3' 7/A*(3' /,' .2*' ,(0!.,0;' 3/!;' &(*' 2*('
,/3.*("-2!;1(*4' 2*' A&3' A/(32!77*1' A!.2

--/(1!4>'./' .2*' 3./(5' 6/3.' >*4*(&;;5'-0(F
(*4.' 32*' A&3' .2*' 1&0>2.*(' /,' L*03' A'2Xá
2&1'3A&;;/A*1' 2!3',!(3.'A!,*' *.!3'8H' /04F
3*;'I9' .2*' 1&0>2.*(' /,' -*&403' !4',*&(.2&.'
32*' A/0;1' <(!4>',/(.2' &'3/4' 3./(4>*(' .2&4'
2!63*;,' *72&*3.03'8/(' &--/(1!4>'./' &4F
/.2*(' =*(3!/4' (/6*.2*03' -;&=*' /7*4' .2*'
2*&1' /,' L*03' A!.2' &4' &0*' /4' A2!-2' .2*4*'
37(&4>',/(.2' !4' ,0;;' &(6/0(' .2*' >/11*33'
/,' *.*(4&;'=!(>!4!.5' 0.' 2*(' &4-!*4.' *7!F
.2*.' + $1 D 8H'</(4' /,' (!./4 I' /('
.2*' (/&(!4>',;//19' 7/!4.3' ./' A&.*(' 8.2&.'
!3'./' -*&4039' &3' .2*' 3/0(-*' /,' 2*(' <*!4>'
-*&403' A&3' &--/(1!4>' ./' /6*(' .2*'
/(!>!4*/,'&;;'.2!4>3'&41'/,' &;;'1*!.!*3' 2*'
A/(32!7' /,' .2*4*' &41' .2*' 3./(5' /,' 2*('
<!(.2' A*(*' &--/(1!4>;5' -/44*-.*1' A!.2'
6&45'<(//D3'&41';&D*3'!4' =&(!/03' (*>!/43'
37-!&;;5'!4' -*/.!&' 2*33&;!&'&41' !<5&'
./'A2!-2'.2*' 4&6*' + "' A&3'&..&-2*1
(/6'.2*' ,!(3.' .2*4*' .&D*3'&'=*(5'7(/F
6!4*4.'7;&-*'!4'.2*' (**D'7/70;&('(*;!>!/4'
2*' /6*(!-' 2564 3' (*7(*3*4.' 2*(' &3' .2*'
,&=/0(!.*' /,' 2*(' ,&.2*(' A2/' (*,03*3' 2*('
4/.2!4>' 2*4' 3/;*64' /&.23' A*(*' ./' <*'
.&D*4'.2*5'K/!4*1' 2*(' 4&6*' A!.2' .2/3*' /,'
L*03' &41' 7/;;/' !4' &' A&5' A2!-2' 32/A3'
.2&.' .2*' .2(**' 1*!.!*3' (*7(*3*4.' .2*' *6F
</1!6*4.' /,' &;' 1!=!4*' &0.2/(!.5' !.2'
.2*' *0-*7.!/4' /,' .2*' .A/' >/13' K03.' 6*4F
.!/4*1' .2*(*' !3' 4/' /.2*(' 1*!.5' =2/3*'
/(!>!4&;' -2&(&-.*(' &3' &' 7/A*(' /,' 4&.0(*'
041*(A*4.' 3/' (*6&(D&<;*' &4' *.2!-&;' 1*F
=*;/76*4.' /.2' -/4-*7.!/43' /,' .2*4*'
.2*' 4&.0(&;' &41' .2*' *.2!-&;' A*(*' !4.!6&.*;5'
-/44*-.*1' !4' .2*' (*;!>!/4' /,' ..!-&' A2/3*'
-&7!.&;' .2*43' A&3' 4&6*1' &,.*(' .2*4*'
&41' A&3' .2*' 6/3.' !67/(.&4.' 3*&.' /,' 2*(
A/(32!7' .2*4*' A&3' /(!>!4&;;5'.2*' 6&!1*4'
1&0>2.*(' /,' .2*' >/1' /,' 2*&=*4" .2*' -;*&('
.(&437&(*4.' &*.2*(' A2/3*' 70(!.5' !3' &;A&53'
<(*&D!4>,/(.2'!4'04=*!;*1'<4;;!&4-5'.2(/0>2'
.2*' -;/013' .2&.' 30((/041' !.' 3' &' 1*!.5'
/,' .2*' 3D5' 32*' A!.2' L*03' !3' .2*' 6!3.(*33'
/,' .2041*(' &41' ;!>2.4!4>' !D*' L*03' 32*'
-&((!*3' .2*' 1' A!.2' .2*' (/>/4 3' 2*&1'
.2*' 356</;' /,' .2*' .*67*3.' &41' !.3' .*((/(3'
4' 6&45'3.&.0*3'&--/(1!4>;5'32*' !3'(*7(*F
3*4.*1' &3' 20(;!4>' .2*' .2041*("</;.' 0.'
32*'&;3/'3*413'1/A4 ,(/6'3D5'./'*&(.2';!>2.'
&41' A&(6.2' &41' ,(0!.,0;' 1*A' &41' A!.2'
.2*6' 7(/37*(!.5'./' ,!*;13' &41' 7;&4.3' '
A2/;*' 3*(!*3' /,' ,&<;*3' &41' 03&>*3'<*;/4>F
!4>' *37*-!&;;5'./' .2*' .2*4!&4' (*;!>!/4'
(*7(*3*4.3' 2*(' &3' .2*' 2*;7*(' &41' 7(/.*-./('
/,' &>(!-0;.0(*' 2*' .A/' 1*!.!*3' (*-2'"
.2*03' &41' (!-2.2 4!03'2/4/0(*1'!4' ..!-&'
&3' 7/A*(3' /,' .2*' ,(0!.,0;' 3/!;' &(*' 2*('
,/3.*("-2!;1(*4' 2*' A&3' A/(32!77*1' A!.2

(*-2.2*03 !4 . * .*6 7;* 4&6*1 &,.*(2!6 8.2* 9 (.2* /;1*3. 3&4-.0&(5 /4 .2* .2*4!&4 -(??;!3 2* 4&6*3 /, 2*(*&(;!*3. 7(!*3.*33*3 .2* 1&0>2.*(3 /, *-(/73 >;&0(03 &41(303 &41 *(3* 3!>4!,5 .2* <(!>2. &!(.2* 1*A &41 .2* (&!4 &41 &(* 6*(* 7*(3/4!,!-&.!/43 /, .2*!(:0&;!.!*3 /, 30-2 =&;0* ./ .2* .2*4!&4 .*((!./(5

2* 3/A!4>3*&3/4 A&3 /7*4*1 !4 ..!-& <5 .2(** 3&-(*1 3*(=!-*3 /, 7;/0>2!4> .2*3* .A/ A*(* !4 2/4/0(/, .2*4* &3 !4=*4.(*33 /, .2* 7;/0>2 A2!;* .2* .2!(1 .//D 7;&-* !4 2/4/0(/, *6*.*(.A&3 .2*4* &;3/ A2/ 2&1 .&0>2. 6*4 2/A ./ &..&-2 /0*4 ./ .2* 5/D* &</=* &;; 32* 2&1 >!=*4 .2*6 .2* /;!=*".(** .2* .(*&30(* /, ..!-& 2!3 .(** 32* 2&1 6&1* ./ >(/A /0. /, .2* (/-D /, .2* -!.&1*; A2*4 1!370.!4> .2* 7/33*33!/4 /, .2* ;&41 A!.2 /3*!1 4 *=*(&, *3.!=&;3 2&=!4> (*,*(*4-* ./ .2*3* ,04-.!/43 /, .2* >/11*33 A*(* -*;*<(&.*1 !4 ..!-& .2* $:" &41 , :" .2* (.2* ((/((&41 .2* ((A2!-2 A*(* -/6 6/4 ./ .2*4* A!.2 !/45303 # =*4 2*(-2!*, ,*&3. .2* , " (" A&3 /(!>!4&;;5 &2&(=*3. ,*3.!= =&; .!3 3!>4!,!-&4. .2&. .2* 7(*3*4.&.!/4 /, .2* / /(6&4.;* .2* -2!*, /,,*(!4> &. .2* -*;*<(&.!/4 .//D 7;&-* !4 .2* 3/A!4> 3*&3/4 0. &,.*(A&(13 6/(* A&3 6&1* /, .2* !4.*;;*-.0&; >!,.3 <*3./A*1 <5 .2* >/11*33

.2*4* A&3 =*(5 >*4*(&;;5 (*>&(1*1 &3 .2* >/11*33 /, A&(" &4 !1*& A2!-2 !4 &4-!*4. .!6*3 A&3 .2* 7(*=&!;!4> /4* . A&3 -/44*-.*1 A!.2 .2* ,&-. .2&. ;!D* 2*(,&.2*(L*03 32* A&3 3077/3*1 ./ <* &<;* ./ 3*41 3./(63 &41 <&1 A*&.2*(4 2!3 -&7&-!.5 32* &77*&(3 !4 3./(5 &3 .2* .(0* ,(!*41 /, &;; </;1 A&((!/(3 30-2 &3 *(3*03 *;;*(/72/4 &3 4 *(-;*3 !16*1*3 &41 1533*03 0. 2*(-/0!&>* !3 & A!3* -/0(&>* 4/. & <;!41 (&324*33 ;!D* .2&. /, (*3" &41 32* !3 &;A&53 (*7(*3*4.*1 &--/(1!4>;5 &3 >*..!4> .2* <*..*(/, 2!6 4 .2!3 -/44*-.!/4 32* A&3 2/4/0(*1 !4 .2*4!&4 A/(32!7 6&!4;5 &3 & 7(/.*-./(&41 1*,*41*(.203 8./ .&D* & 3.(!D!4>* *OF &67;*g 32* A&3 A/(32!77*1 /4 .2* -!.&1*; /, .2*43 041*(.2* 4&6* /, , 8H -2&67!/4 d H 7(/.*-./(Ig 0. 32* A&3 &;3/ & >/11*33 /, =!-./(5 3 .2* 7*(3/4!F ,!-&.!/4 /, =!-./(5 # (" > 32* 2&1 & 3*-/41 &41 *37*-!&; .*67;* /4 .2* .2*F 4!&4 -(/7/;!3 # ;&4 /, (41 .2* >(*&.3.&.0*3 !4 .2* .*67;*3 (*7(*F 3*4.*1 2*(;!D* L*03 A!.2 !D* !4 2*(/0.3.(*.-2*1 2&41 2* /--07&.!/43 /, 7*&-* 2/A*=*(,/(6*1 .2* 6&!4 372*(* /, 2*(&-.!=!.5 !D* &;; .2* /.2*(1*!.!*3 A2/ A*(* 3077/3*1 ./ 1!37*43* .2* <;*33F !4>3 /, 4&.0(* 32* !3 .2* 7(/.*-.(*33 /, >(/A!4> -2!;1(*4 &41 &3 .2* >/11*33 /, .2* -;*&(3D5 &41 /, 70(* &!(32* <*3./A3 2*&;.2 &41 D**73 /,, 3!-D4*33 0(.2*(32* !3 8A!.2 L*03 .2* 7&.(/4*33 /, .2*4!&4 , (@ /(04!/43 /, D!43,/;D .2* 43 &41 7&(& 32* 7(/.*-.3 .2* 7/70;&(&41 1*;!<*(&.!=* &33*6<;!*3 !4 6&45 7;&-*3 &41 *37*-!&;;5 &. .2*43 .2* A2/;* 3.&.* !3 041*(2*(-&(* # (" , (;3*A2*(* 32* 7(*3!1*3 /=*(.2* ;&(>*(04!/43 /, D!41(*1 7*/7;*3 2* ,*3.!=&; /, .2*4* ./4!& &. /(14*& A&3 & -/4,*1*(&.* ,*3.!=&; /, &;; /*/.!& 41*(.2* .!.;* /, , " (M 32* A&3 A/(F 32!77*1 &3 .2* >/11*33 /, .2* -26&4 *&>0*

7*&D!4> <(/&1;5 .2*4* (*7(*3*4.3 206&4 A!. &41 -;*=*(4*33 &41 7(*3!1*3 /=*(.2* A2/;* 6/(&; &41 !4.*;;*-.0&; 3!1* / 206&4 ;!,* (/6 2*(&(* 1*(!=*1 &;; .2* 7(/10-.!/43 /, A!31/6 &41 041*(3.&41F !4> *=*(5 &(. &41 3-!*4-* A2*.2*(/ A&(/(/, 7*&-* -(/A1 /, 1!3-/=*(!*3 /, .2* 6/3.=&(!/03 D!413 !3 &3-(!<*1 ./ 2*(.2&3 <**4 &;(*&15 6*4.!/4*1 .2&. 32* A&3 -(*1!.*1 A!.2 .2* !4=*4.!/4 /, .2* 7;/0>2 &41 .2* 5/D* 2* A&3 ,.*4 &33/-!&.*1 A!.2 /3*!1/4 &3 .2* !4=*4.(*33 /, 2/(3*F .&6!4>&41 32!7"<0!;1!4> 4 .2* .2*4!&4 3./(5 32* .*&-2*3 (!-2.214!03 ./ ,&3.*4 2!3 2/(3*3 ./ .2* -2&(!/. 4 .2* /(!4.2!&4 3./(5" 32* .*&-2*3 *;! (72/4 ./ 30<10* *>,.303 . !4103 !4 2/1*3 32* A&3 A/(32!77*1 &3 .2* >/11*33 A2/ 2*;7*1 4&.!3 ./ <0!;1 .2* ,!(3. ,!,.5"/&(*1 32!7 4 .2* ,&<; /, .2* (>/4&0.3!. !3 32* A2/ !43.(0-.3 .2* <0!;1*(3 /, .2* ,!(3. 32!7 .2* (>/ =*4 !4 /6*(&;; .2* 7(/10-.!/43 /, A/6*4 3 &(. &3 /, 37!44!4>&41 A*&=!4> &(* 2&(&-.*(!Q*1 &3 H A/(D3 /, .2*4* I &45 & , "(/(3.&.0* /, &;;&3 </(* & 37!41;* &41 1!3.&,; !4 !.3 ;*, 2&41 3 .2* 6!3.(*33 &41 7(/.*-.(*33 /, &(.3 &41 2&41!A/(D 32* A&3 A/(32!77*1 &. .2* $ 8/(*&3. /, 6!.23 041*(.2* .!.;* /, 9 1 " 41*(.2!3 4&6* 32* !3 6*4.!/4*1 !4 3*=*(&; !43-(!7.!/43 ,/041 /4 .2* -(/7/;!3 *(>*4!03 -/=*(3 .2* ,!*;1* /, 603!- &41 1&4-!4> 2* !3 !4=*4./(/, .2* ;;0.* &41 .2* (067*. &3 A*;; &3 /, .2* 5((2!- A&("1&4-* !4 A2!-2 32* A&3 &!1 ./ 2&=* <**4 .2* *&(;!*3. 7*(,/(6*(&. .2* -*;*<(&.!/4 /, .2* =!-./(5 /, .2* /13 /=*(.2* !&4.3

.' A&3' 2!1!&3' A2/' ,!4&;;5' ,!0*1' .2*' .57!-&;' (*7(*3*4.&.!/4' /,' .2*4*' !4' A/(D3' /,'&(.' 6/4>' 2!3' 406*(/03' 3.&.0*3' /,'2*(' .2(**' .2*' 6/3.' -*;*<(&.*1' A*(*' 3*.' 07' /4' .2*' &-(/7/;!3' /,' .2*43' 2*3*' A*(*' 8$9' 2*' -/;/33&;' 3.&.0*' /,' (" ' , (" ' A(/0>2.' !4' !=/(5' &41' >/;1' .2!(.5' ,**.' !4' 2*!>2.' 8A!.2' .2*' 7*1*3.&;9' &41' 3.&41!4>' !4' .2*' &(.2*4/4' # ' ' 2*' >/11*33' A&3' (*7(*3*4.*1' A*&(!4>' &' ;/4>' (/<*' ,&;;!4>' 1/A4' ./' .2*' ,**.' &41' /4' 2*(' <(*&3.' A&3' .2*' 3*>!3' A!.2' .2*' /(>/4 3' 2*&1' ' 2*;6*.' A&3' /4' 2*(' 2*&1'' !4' /4*' 2&41' 32*' </(*' &' !-./(5' 3!0' ,**.' !4' 2*!>2.

8 9' 2*' ; " "', '3/' 4&6*1' <*-&03*' !.' 2&1' <**4' 1*1!-&.*1' <5' .2*' .2*4!&4' $ (' !4' *64/3' 2*' &..(&-.!/43' /,' .2!3' 3.&.0*' A/4' ,/(' !.' .2*' 4&6*' /,' H .2*' *&0.!,0; I' !D*' .2*' 3*-/41' !.' A&3' /,' <(/4Q*' &3' &' (*7(*3*4.&.!/4' /,' .2*4*' &3' .2*' >/11*31' /,' 7*&-*' !.' A&3' A!.2/0.' & 2*;6*.

2(/0>2/0.' .2*' 406*(/03' &41' =&(5!4>' (*7(*3*4.&.!/43' /,' 2*(' .2*4*' 2&3' &4' !6F 7/3!4>' 3.&.0(*' 30>>*3.!4>' &' 6&3-0;!4*' (&.2*(' .2&4' &',*6!4!4*',/(6" &4' /=&;',&-*' A!.2' &'<(/A',/'>(*&.'-;*&(4*33' &41' 70(!.5' .2/0>2.,0;' *5*3'-/67(*33*1';!73',!(6'-2!4' &41' 2&!(' -&(*;*33;5'.2(/A4'<&-D' # '-0.9' *(' /(1!4&(5'&..(!<0.*3'&(*' .2*' 2*;6*.' .2*' 3*>!3' -/=*(!4>' .2*' <(*&3.' /(' 3*(=!4>' &3' &' 32!*;1',/(' .2*' &(6' .2*' ;&4-*' .2*' (/041' 32!*;1' A!.2' .2*' /(>/4 3' 2*&1' .2*' /;!=*' <(&4-2' &41' .2*' /A;' 8 4' 2*(' !1*4.!,!-&.!/4' A!.2' " ' ' 0 +

.2*411/6 ' ' (**D' 3-0;7./(' /,' .2*' 2/1!&4' 3-2//;' *' A&3' &33/-!&.*1' A!.2' >,*&41*('&41' <;51/(03'!4'.2*'7(/10-.!/4' /,' .2*' -*;*<(&.*1' >(/07' /,' ; " ' # ' $())

.2;*.3*' 2!3' A&3' .2*' 4&6*' >!=*4' <5' .2*' (**D3'./' .2*' 7(/,*33!/4&;' -/67*.!./(3' ,/(' .2*' 7(!3*3' !4' >56 4&3.!-' -/4.*3.3'3..-2' &3' </0!4>' &41' .2*' " "' &' -/6<!4&.!/4' /,' </0!4>' A!.2' A(*3.;!4>' 2*' ('7(&-F .!3*1' >56 4&3.!-3' &3' &' 6*&43' /,' ;!=*;!2//1' A2*(*&3' !4' >*4*(&;' (**D' 3/-!*.5' !.' A&3' (*>&(1*1' &3' &' ;!<*(&;' &(.' 03*,0;' ,/(' .2*' 2&(6/4!/03' 1*=*;/76*4.' /,' .2*' </15' &41' &3' &' .(&!4!4>',/(' 6!;!.&(5'3*(=!-*' 2*' 7(/F ,*33!/4&;'&.2;*.*3' &1/7.*1' &' 37*-!&;'(*>!6*4' A2!-2' 7(/10-*1' &4' *0-*7.!/4&;' 1*=*;/76*4.' /,' </1!;5' 3.(*4>.2' &41' 603-;*' <0.' 04,!..*1' .2*6',/(' &45' /.2*(' 2!41' /,' ;!,*' /(' 70(30!.' 2*' 7(/,*33!/4' /,' &.2;*.*' A&3' &--/(1!4>;5' &1/7.*1' 6&!4;5' <5' 6*4' /,' ;/A' <!(.2' &41' A&3' 6/(*' 7/70;&(' A!.2' .2*' 60;.!.01*' .2&4' A!.2' 7*(3/43' /,' !4.*;;!>*4-*' &41' *10-&F .!/4' (**D' &.2;*.*3' 1!1' 4/.' 6&D*' .2*!(' &77*&(&4-*' !4' /6*' <*,/(*' $R?' ' 4' .2*' (*70<;!-&4' &>*' .2*5' A*(*' 4/.' (*>&(1*1' A!.2' >(*&.' ,&=/0(<0.' 041*(' 0>03.03' .2*!(' -/4.*3.3' <*-&6*' :0!.*' 7/70;&(' /' 3/-!&;' 3.!>6&'&..&-2*1'./'.2*6' &3' ./'&-./(3' &41' >;&1!&./(3' &41' 041*(' .2*' 67!(*' .2*5' ,/(6*1' .2*63*;=*3' !4./' (*>0;&(' 3/-!*.!*3' *&-2'A!.2'!.3'/A4'7(*3!1*4.'.(&=*;;!4>',/(6' 7;&-*'./'7;&-*'&.'.2*',*3.!=&;3'&.'A2!-2'.2*5' A/0;1' &77*&(' !4' 7&!(3' &((&4>*1' <5';/.',/(' &2!>2' (*604*(&./4' 4' R?' ' /6!.!&4' *3.&<;!32*1' &' -/4.*3.' /4' .2*' &7!./;',/(' 603!-!&43' &41' &.2;*.*3'./' (*-0(' *=*'5',/0(' 5*&(3' &41' *(*-.*1' &' 37*-!&;' (&-*"-/0(3*',/(

!4' .2*' /.2*(' &' ;&4-*' A2!-2';*&4*1' &>&!43.' &'32!*;1'&1/(4*1'A!.2'3-*4*3',/(6'.2*'<&..;*3' /,' .2*' 6&Q/43' A!.2' .2*' !&4.3' 8@9' 2*' <(/4Q*' 3.&.0*' /,' (" ' , ('*(*-.*1' ,(/6' .2*' 7(/-**13' /,' .2*' 37/!;3' .&D*4' &' &(.2 4' &41' 3.&41!4>' <*.A**4' .2*' (/'' 75;&*&' &41' .2*' (*-2.2*06' 2*' 7(/7/(F .!/43' /,' .2!3' 3.&.0*' A*(*' 3/' >!>&4.!-' .2&.' .2*' >;*&6!4>' 7/!4.' /,' .2*' ;&4-*' &41' .2*' -(*3.' /,' .2*' 2*;6*.' A*(*' =!3!<;*' ./' 3*&6*4' /4' &77(/&-2!4>' .2*' !(&*03' ,(/6' 04!06

.2*' &.2;*.*3' /4' .2*' $ ' " ' 2*'
&7!./;!4*' -/4.*3.' 30(=!=*1' 10(!4>' .2*'
dA2/;*' /,' &4.!:0!.5
.2;1.2 .!*' 2*' 7*(3/43' A2/' &((&4>*1'
%&41' &-.*1' &3' 067!(*3' !4' .2*' =&(!/03' 70<;!-'
>&6*3' /,' 8 ;(**-*' 2*5' A*(*' &;3/' -&;;*1'
16"/ (H' &41' &.' ;567!&' " '
' &;3/' &!B 9
.! 43' /(.04! .!J&03' ' &.!4' >(&6'
4&(!&4' A2/' ,;/0(!32*1' !4' .2*' ,!(3.' 2&;,' /,'
.2*' C.2' -*4.0(5' ' &41' A&3' .2*' &0.2/('
*,' &' 3-2/!;' 6&40&;' /,' 7(/3/15
.!6!&' 2!3' (**D' A/(1' 1/*3' 4/.' !6F
7;5' 1!32/4/0(' !4' .2*' 6/1*6' 3*43*' <0.' 1*F
7(!=&.!/4' /,' -!=!;' (!>2.3' A2*.2*(' 7&(.!&;'
%-/67;*.*' .*67/(&(5'/(' 7*(7*.0&;' &(.!&;'
' &.' .2*43' 6!>2.' -/43!3.' ,/(' !4F
3.&4-*' !4' 1*7(!=!4> ' -!.!Q*4' /,' .2*' (!>2.' ./'
&77*&(' &>&!4' &3' 7(/3*-0./(' !4' &3*' 2*' 2&1'
!4' .2!3' -&7&-!.5',&!;*1'./' /<.&!4'&',!,.2'7&(.'
/,' .2*'=/.*3*/('/,' .2*' (!>2.' ./'7(/7/3*'&;&
&>&!4'./' .2*' &33*6<;5'!,' 2*' 2&1' <**4' .2(**'
.!6*3'-/41*64*1',/('6&D!4>'!;;*>&;'7(/7/3!F
.!/43' 4' -&3*3' /,' -/67;*.*' ' &'7*(F
3/4' A&3' *0-;01*1',(/6' .&D!4>'7&(.' !4' &45'
70<;!-' 7(/-**1!4>' A2&.*=*(' *' A&3',/(F
<!11*4' &--*33' ./' .2*' 1 ' &41' .2*' 70<;!-'
3&4-.0&(!*3'" 2*' A&3' !4-&7&-!.&.*1',(/6' &7F
7*&(!4>' !4' -/0(.' &3' &'7(/3*-0./(' 4' -&3*'
-,' =*(5' 3*(!/03' /,,*4-*3' .2*' ' 6!>2.'
d<*',/;;/A*1' <5'-/4,!3-&.!/4'/,'7(/7*(.5'&41'
6!>2.' *=*4' <*' *0.*41*1' ./' &' 6&43' -2!;F
1(*4' ' 6!>2.' &;3/' <*' !4,;!-.*1' /4'
G1*<./(3' ./' .2*' .&.*' !,' .2*' 1*<.' A&3' 4/.'
7&!1' A!.2!4' .2*' &77/!4.*1' .!6*' .' A&3'
.2*4' &--/67&4!*1' A!.2' &' ,!4*' *:0!=&;*4.' ./'
.2*' &6/04.' &;(*&15'/A*1' 2*' 7&56*4.'/,'
.2*' 1*<.' <(/0>2.' .2*' ' ./' &4' *41'
0.' A2*(*'!.' A&3'!4,;!-.*1',/('/.2*(',,*4-*3'
!.' A&3' 3*;1/6' (*6/=*1' &41' .2*4' /4;5'&,.*('
&'=/.*' ,/'&.';*&3.'3!0' .2/03&41'-!.!Q*43
4' 7&(.&' -/67;*.*' A&3' 6/3.;5'
!4,;!-.*1' /4' 7*(3/43' A2/' 2&1' <**4'>0!;.5'/,'
-/A&(1!-*' !4' A&(' 2*' /,,*41*(' A&3' 4/.'
%/4;5-0.' /,',(/6' &;;'-!=!;'(!>2.3'&41',(/6'
.2*' -/66/4' 6*&;3' &41'*0*(-!3*3'<0.' 2&1'
./' 30<61.' ./' *=*(5'D!41'/,'!430;.' .'.2*'
70<;!-',*3.!=&;3' 2*' 2&1' ./'.&D*'&';/A'7;&-*'
*' A&3' /<;!>*1'./'A*&('&'7&.-2A/(D'-;/&D'
./' 2&=*' 2!3' 2&!(' -0.' /4' /4*' 3!1*' ./' >!=*'
A&5' !4' .2*' 3.(**.' ./' *=*(5' /4*' *=*4'./'
5/04>' 6*4*' 4/' /4*' A/0;1' >!=*' 2!6' ;!>2.'
,/(' 2!3',!(*'6&((5'2!3'1&0>2.*(''/(' >!=*' 2!6'
2!3'1&0>2.*('./'A!,*' f ;0.&(-2' 1 '
N' &-2*;/(3'A*(*'&;3/'30<K*-.'./'&'D!41'
/,' ' 2*5' A*(*' 4/.' &;;/A*1'./' <*'
7(*3*4.'&.'-*(.&!4',*3.!=&;3'&41'2&1'4/'-;&!6'
./' .2*' 6&(D3'/,'(*37*-.'A2!-2'.2*'5/04>'!4'
G .2*(' -&3*3' A*(*' *07*-.*1' ./' 32/A' 2*

' ' ' ' ' ' '
' ' M ' # '
.;&3'8.2*'H'<*&(*(' /('H'*410(*('I9' 2*'
3/4' /,' .2*' !.&4';&7>.03'&41' ;56B4'8/('
--/(1!4>'./'&4/.2*('&--/04.' 3!&9'<(/.2*('
/,' *4/*.!03' (/6*.2*03'&41' 7!6*.2*03'
4' /6*(' W ' !' V@g' 2*' !3' -&;;*1' H'.2*'
.2!4D*('/,'6!3-2!*,' I'A2/'D4/A3'.2*'1*7.23'
/,' .2*' A2/;*' 3*&'&41' 2&3' 041*(' 2!3' -&(*'
.2*' 7!;;&(3' A2!-2' 2/;1' 2*&=*4' &41' *&(.2'
&3041*(' 4' *3!/1'W+(1'V$Ug' 2*' 3.&413'
&.'.2*'A*3.*(4'*41'/,'.2*'*&(.2'4*&('A2*(*'
.2*' *37 (!1 3' 1A*;;' 2/;1!4>' .2*' <(/&1'
2*&=*4'/4'2!3'2*&1'&41' 04A*&(!*1' 2&413'
/' .2!3' -/41!.!/4' 2*' !3' ,/(-*1' <5' L*03'
&--/(1!4>'./'&';&.*('=*(3!/4'&3'&'704!32 6*4.'
,/(' .2*' 7&(.' 2!-2' 2*' .//D' !4' .2*' <&..;*'
A!.2' .2*' !.&43' 5' .2*' -*&4' 45672'
;*, 4*' 2*' !3' ,&.2*(' /,' .2*' ;>! ,! 3' <5

E' $'.
8 (/ !'.2*'.*67;*' 'L*03'&.'
>!!>,4.0 9

).2(&'/,'.2*' 5 1`3' 4' /6*('.2*'4 472'
&;573/' !3' &;3/' 2!3' 1&0>2.*(' A2/' 1A*;;3'
/4' .2*' !3;&41' >5>!&' .2*' 4&=*;'/,' .2*' 3*&'
&.*(' &0.2/(3' 6&D*' 2!6' .2*' ,&.2*('/,' .2*'
37(!1*3' <5' *37*(!3' .'!3' ./' 2!6' .2&.'
672!.(!.*',;!*3'A2*4'70(30*1'<5' /3*!1/4'
3' .2*!('D4/A;*1>*'/,' .2*' *3.' *0.*41*1'
.2*' (**D3'.(&43,*((*1' .2*' &</1*'/,' .;&3'
./' .2*' ,(!-&4'6/04.&!4'/,' .2*' 3&6*'4&6*'
/-&;'3./(!*3'/,'&'6/04.&!4'A2!-2'3077/(.*1'
.2*' 2*&=*4' A/0;1'4/' 1/0<.'*4-/0(&>*' .2*'
!1*4.!,!-&.!/4' 4' ;&.*(' .!6*3' .;&3' A&3'
(*7(*3*4.*1'&3'&'A*&;.25'D!4>'&41'/= 0*('
/,' .2*' >&(1*4'/,' .2*' *37*(!1*3' *(3*03'
A!.2' 2!3' 2*&1'/,' *103&'.0(4*1' 2!6'!4./'
&'(/-D5'6/04.&!4',/('2!3'!42/37!.&;!.5' 4'
A/(D3'/,'&(.'2*' !3'(*7(*3*4.*1'&3'-&((5!4>

.2*' 2*&=*4" /(' 8&,.*(' .2*' *&(.2' A&3' 1!3F -/=*(*1'./'<*'372*(!-&;9'.2*'.*((*3.(!&;'>;/<*' 6/4>'.2*'3.&.0*3'/,' .;&3'.2*'A '!4' .2*' 03*06'&.' &7;*3'!3'.2*'<*3.'D4/A4' # ' '5 *& (' @ & ',!>' 9

4' (**D'&(-2!.*-.0(*'.2*'.*(6' " ' A&3'*67;/5*1'./'1*4/.*'.2*'-/;/33&;'6&;*' 3.&.0*3'3/6*.!6*3'03*1'!4'>(*&.'<0!;1!4>3' !43.*&1'/,'-/;0643'./'3077/(.'&4'*4.&<;&F .0(*'/('&'7(/K*-.!4>'(//,

.(*43' /4'/,' *;/73'&41' !77/1&6;&' >(&413/4'/,' &4.&;03' # ' 5 $' !.2' .2*'2*;7'/,'2!3'<(/.2*(' 25*3.'3'2*'60(F 1*(*1'2!3'3.*7"<(/.2*(' 2(53!7703' /' *3-&7*'.2*'A(&.2'/,'.2*!('&.2*('.2*'7&!(' /,'<(/.2*(3'.//D'(*,0>*'A!.2'.2*!('<(/.2*(" !4";&A' .2`4*;03' D!4>' /,' 5-*4&*' A2/' >&=*' .2*6' *1!&'./' ;!=*'!4' 0(53.2*03' .2*'<(/.2*('/,'.2*!('7(/.*-./('A&3'D!;;*1' !4'<&..;*' A!.2'.2*' *(&-;*!1&*' .(*43' D*7.'7/33*33!/4'/,'.2*'D!4>1/6'/,' 5-*4&*' A2!-2' 2&1'<**4'>!=*4'2!6'!4' -2&(>*'<5' 0(53.2*03'&41'6&!4.&!4*1'!.'!4'=!(.0*'/,' 7/33*33!4>'&'>/;1*4';&6<'A2!-2'2&1'<**4' >!=*4'2!6'<5' *(6*3',/('.2*'70(7/3*'/,' *0-!.!4>'1!3-/(1'!4'.2*'2/03*'/,' *;/73'&41' &=*4>!4>'.2*'1*&.2'/,';!!3'3/4' 5(.,;03' 25*3.*3' 1*<&0-2*1' 2!3'<(/.2*(3' A!,*' *(<7*'1&0>2.*('/,'.2*'D!4>'/,' (*.*'&41' A!.2'2*('&!1'>/.'7/33*33!/4'/,'.2*'>/;1*4' ;&6<'&41'.2*'D!4>1/6' 0.' &3'&'3!>4' .2&.' (!>2.' &41' A(/4>' 2&1' <**4' -/4F ,/041*1' L*03'.0(4*1'.2*'30..' &41' .2*' 6//4'<&-D'!4'.2*!('-/0(3*' .(*43'&--/(1F !4>;5'(*-/=*(*1'.2*'D!4>1/6'&41'*07*;;*1' 25*3.*3' /' (*=*4>*'2!63*;,' 25*3.*3' 3*4.' ;*!3.2>4*3'&3/4'/,' .(*03'A2/6'2*' 2&1'<(/0>2.'07'&3'2!3'/A4'./' 5-*4&*'./' 60(1*(' .(*03' 0.' .(*03'3;*A' ;*!3"' .2*4*3' 4/.' D4/A!4>' .2&.' 2*' A&3'2!3'3/4' .(*03'(*7;!*1'<5'<(!4>!4>'<&-D' 25*3.*3' &41'2!3',&6!;5',(/6'*0!;*'&41'3*(=!4>'07'./' 25*3.*3'&.' .&<;*' .2*' ;!6<3' /,' 2!3' /A4' 3/43' 25*3.*3',;*1'&A&5" .2*' ;&41' A&3' =!3!.*1' A!.2' <&((*44*33'&41',&6!4*' 4' /<*1!*4-*' ./' &4' /(&-;*' .(*03'>/*3',/(.2' ./' 3**D'2!6'<0.' /4;5',;413'2!3' 1&0>2.*(' *;/7;&'A2/6'2*'.&D*3'./'A!,*' ! >!3.203' 2*(' 3/4' <5' 2*(' ,&.2*(' 25*3.*3' A2/' !3' 1*3.!4*1'./' &=*4>*'2!6' .(*03'&1/7.3' &41' (*&(3'&3'2!3'/A4'-2!;1' 25*3.*3'!3'&,.*(F A&(13',/041'<5' >&6*64/4'&41' *4*;&03' A2/' <(!4>'2!6'./' 5-*43*' *'!3'!67(!3F /4*1'&41'! >!3.20'/(1*(*1'./'60(1*('2!6' 5' .2*'3A/(1'A2!-2' >!3.203' -&((!*3' 25*3.*3' (*-/>4!3*3' 2!6'&3'2!3'3/4'&41' 7(/7/3*3'./'2!6'./'3;&5' .(*03' *&4A2!;*' *;/7!&'!4'2/(((' &.' .2*'1!3-/=*(5'/,'2*(' 3/43' !4-*3.0/03'/(!>!4'1(!=*3'.2*'3A/(1 !4./'2*('/A4'<(*&3.' ! >!3.203'.&D*3'.2*' <;//15'3A/(1'./' .(*03'&3'&'7(//,'.2&.' 2*'2&3'*0*-0.*1'2!3'-/66!33!/4'&41'&,.*(F A&(13',&;;3' 7/4'2!6'A!.2' 25*3.*3'A2!;*' 2*'!3'*4>&>*1'!4'6&D!4>'&'.2&4D"/,!*(!4>' /4'.2*'3*&"32/(*' 25*3.*3'&41'! >!3.203' .2*(*07/4'3*!Q*'.2*'>/=*(46*4./,' 5-*4&*' &41'1(!=*' >&6*64/4'&41' *4*;&03'/0.'/,' .2*'-/04.(5

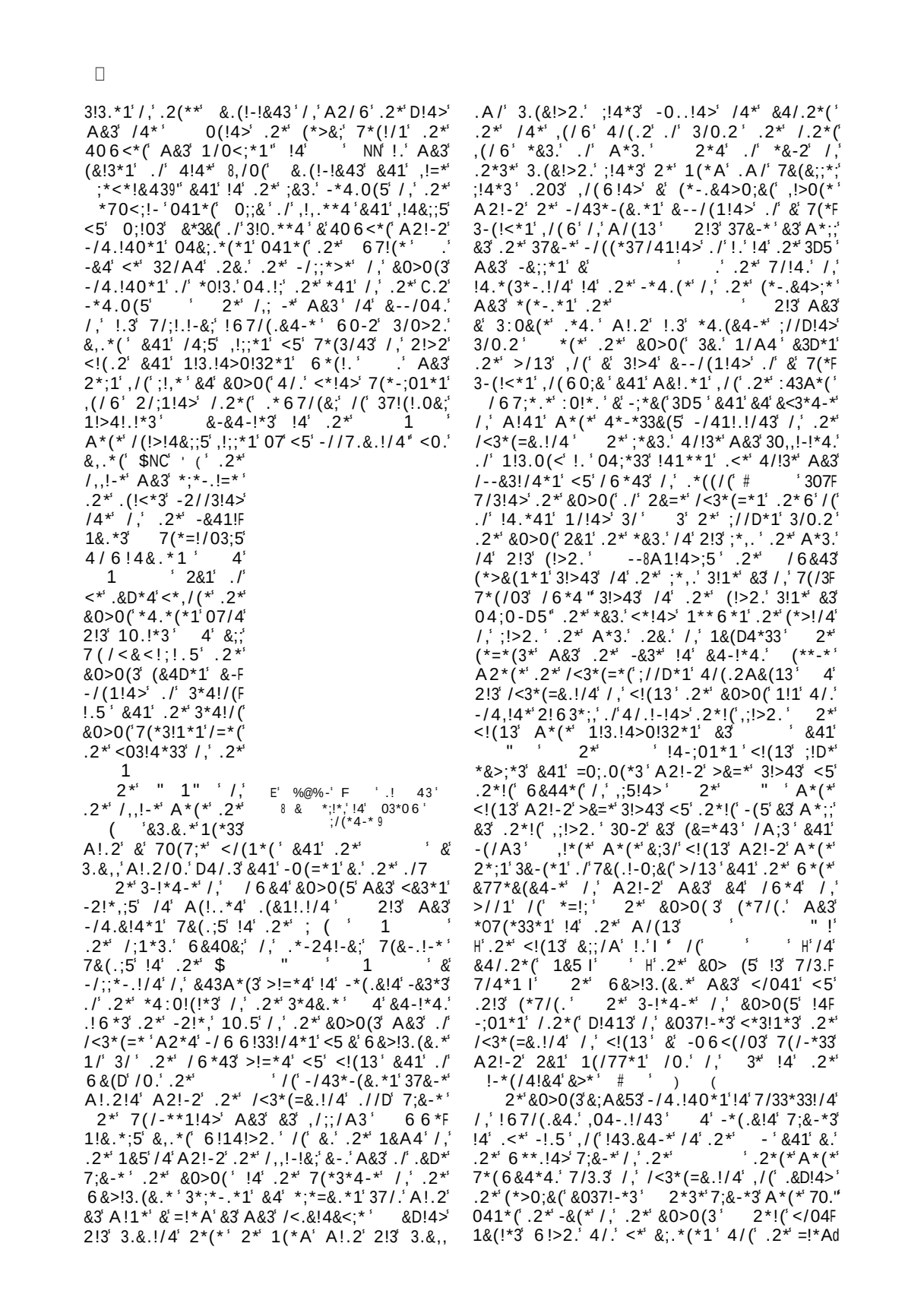
2*'/;1*('3./(5'D4/A3'4/.2!4>'/,'.2*3*' 2/(((/(3' 4' /6*(' *;/73'(*-*!=*3'.2*' 3-*7.(*',(/6'L*03'<5'.2*'6!4!3.(&.!/4'/,' *(6*3*'2*';*&=*3'!.'./' .(*03'&41' .(*03' ./' 25*3.*3'A2/'2&413'!.'1/A4'./' >&F 6*64/4' *3!/1'&;;01*3'./'.2*'A*&;.2'/,' .2*' *; 7 13*'<0.'!3'3!;*4.'&3'./'.2*'(*3. .(;1&*'8 (' ' 2*'3/43' /,' .(*03' >&6*64/4'&41' *4*;,.!;3

.(!06' 2*'/(!>!4&;'4&6*',/('&' /6&4' 2/03*'.2*'!4.*(!/(' /,'A2!-2'-/43!3.*1'/,'&' 3!4>;*' -2&6<*(' /7*4'&.'.2*',(/4.' ,.*(F A&(13'.2*'.*!6'A&3'&77;!*1'./'.2*';&(>*' 2&;' A2!-2'*0.*41*1'&;/4>'.<*' A2/;*' <(*&1.2'/,'.2*'2/03*'&41'A&3';!>2.*1'<5' &4'/7*4!4>'!4'.2*'(//,' 2*' 'A&3' *4.*(*1'<5'.2*'K//('/,'.2*'2/03*'&41'.2*' /.2*(' -2&6<*(3'A*(*'&..&-2*1'./'!.' # ' /) ' .2*(' <0!;1!4>3'3&-(*1'/('7(/F ,&4*'7/33*33!4>'2&;;3'/,'.2!3'D!41'A!.2' 1A*;;!4>"(//63'&..&-2*1'A*(*'D4/A4'<5' .2*'4&6*'/,' ',(/6'.2*'(*3*6<;&4-*' /,'.2*!('/(/6'./'.2&.'/,'&4'/(1!4&(5'2/03*' 2*' '=' '/('&</1*'/,'.2*' *3.&;' !(>!43'!3'&4'*0&67;*'/,'!'-/43*-(&.*1' ' 2*' ';' 'A&3'*-0F ;&(' 2!3'A&3'.2*'/,' -!&;'(*3!1*4-*'/,'.2*' -*43/('&41'!.'A&3'2*(*'.2&.' 3!4!03'/;;!/' *3.&<;!32*1'.2*',!(3.'70<;!-';!<(&(5'D4/A4' ./'2&=*'*0!3.*1'&.' /6**' 0*.!/4"(/63' A*(*'&;3/'-&;;*1' '&41'2&;;3'/,'.2!3' 1*3-(!7.!/4'A*(*'/,.*4'&..&-2*1'./'.*67;*3' &41'03*1',/('.2*'6**.!4>3'&41',*3.!=&;3'/,' 3/-!*.!*3

.(?743' 4*'/,'.2*'.2(**' &.*3' # ' 0. :

..&'#+'T " 'f/('T " [' ' /6&4'1(&6&.!-'7/*.'&0.2/('/,' 1 ' # ' " & * 'A2/'1!*1' '('UU'&41'A&3'& -/4.*67/(&(5'/,' ,(&4!03' *' A&3'-*;*F <(&.*1',/('2!37/A*('/,'1(&A!4>'-2&(&-.*(' *37*-!&;;5'!4'-/4=*(3&.!/4&;'3-*4*3'!4'A2!-2' A/6*4'A*(*'!4.(/10-*1' ' 2!3'-/6*1!*3' /4;5'.A*;=*'.!.;*3'(*6&!4'A!.2'&',*A'!43!>F 4!,!-&4.',(&>6*4.3

..2!3' '-2(/4!-;*'/,' ..!-'2!3./(5'!4' A2!-2'37*-!&;'&..*4.!/4'A&3'7&!1'./'/--0(F (*4-*3'/,'7/;!.!-&;'&41'(*;!>!/.!3'3!>4!,!-&4-*' ,.*('.2*';&3.'2&;,'/,' .2*'C.2'-*4.0(5' -2(/4!-;*3'/,' .2!3'D!41'A*(*'-/67/3*1'<5



3!3.*1 /, .2(** &.(!-!&43 /, A2/6 .2* D!4>
A&3 /4* 0(!4> .2* (*>&; 7*(!/1 .2*
406<*(A&3 1/0<;*1 !4 NN !. A&3
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70<;!- 041(0;;& ./ ,!,.**4 &41 ,!4&;;5
<5 0;!03 &*3&(./ 3!0.**4 &406<*(A2!-2
-/4.!40*1 04&;.*(*1 041*(.2* 67!(* .
-&4 <* 32/A4 .2&. .2* -/;;*>* /, &0>0(3
-/4.!40*1 ./ *0!3. 04.!; .2* *41 /, .2* C.2
-*4.0(5 2* /,; -* A&3 /4 &--/04.
/, !.3 7/;!.!-&; !67/(.&4-* 60-2 3/0>2.
&,.*(&41 /4;5 ,!;;*1 <5 7*(3/43 /, 2!>2
<!(.2 &41 1!3.!4>0!32*1 6*(!. . A&3
2*;1 ,/(;!,* &4 &0>0(4/. <*!4> 7(*-;01*1
,(/6 2/;1!4> /.2*(.*67/(&; /(37!(!.0&;
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2* " 1" ' /, E %@%- F .! 43
.2* /,,!-* A*(* .2* 8 & *;!*, !4 03*06
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A!.2 & 70(7;* </(1*(&41 .2* &
3.&,, A!.2/0. D4/.3 &41 -0(=*1 &. .2* ./7
2* 3-!*4-* /, /6&4 &0>0(5 A&3 <&3*1
-2!*,;5 /4 A(!..*4 .(&1!.!/4 2!3 A&3
-/4.&!4*1 7&(.;5 !4 .2* ; (1
.2* /;1*3. 6&40&; /, .*-24!-&; 7(&-.!-*
7&(.;5 !4 .2* $ " 1 &
-/;;*-.!/4 /, &43A*(3 >!=*4 !4 -*(.&!4 -&3*3
./ .2* *4:0!(!*3 /, .2* 3*4&.* 4 &4-!*4.
.!6*3 .2* -2!*, 10.5 /, .2* &0>0(3 A&3 ./
/<3*(=* A2*4 -/6 6!33!/4*1 <5 & 6&>!3.(&.*
1/ 3/ .2* /6*43 >!=*4 <5 <!(13 &41 ./
6&(D /0. .2* /(-/43*-(&.*1 37&-*
A!.2!4 A2!-2 .2* /<3*(=&.!/4 .//D 7;&-*
2* 7(/-**1!4> A&3 &3 ,/;;/A3 66*F
1!&.*;5 &,.*(6!14!>2. /(&. .2* 1&A4 /,
.2* 1&5 /4 A2!-2 .2* /,,!-!&; &-. A&3 ./ .&D*
7;&-* .2* &0>0(!4 .2* 7(*3*4-* /, .2*
6&>!3.(&.* 3*;*-.*1 &4 *;*=&.*1 37/. A!.2
&3 A!1* & =!*A &3 A&3 /<.&!4&<;* &D!4>
2!3 3.&.!/4 2*(* 2* 1(*A A!.2 2!3 3.&,,
.A/ 3.(&!>2. ;!4*3 -0..!4> /4* &4/.2*(
.2* /4* ,(/6 4/(.2 ./ 3/0.2 .2* /.2*(
,(/6 *&3. ./ A*3. 2*4 ./ *&-2 /,
.2*3* 3.(&!>2. ;!4*3 2* 1(*A .A/ 7&(&;;*;
;!4*3 .203 ,/(6!4> & (*-.&4>0;&(,!>0(*
A2!-2 2* -/43*-(&.*1 &--/(1!4> ./ & 7(*F
3-(!<*1 ,/(6 /, A/(13 2!3 37&-* &3 A*;;
&3 .2* 37&-* -/((*37/41!4> ./ !. !4 .2* 3D5
A&3 -&;;*1 & . .2* 7/!4. /,
!4.*(3*-.!/4 !4 .2* -*4.(* /, .2* (*-.&4>;*
A&3 *(*-.*1 .2* 2!3 A&3
& 3:0&(* .*4. A!.2 !.3 *4.(&4-* ;//D!4>
3/0.2 *(* .2* &0>0(3&. 1/A4 &3D*1
.2* >/13 ,/(& 3!>4 &--/(1!4> ./ & 7(*F
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/67;*.* :0!*. & -;*&(3D5 &41 &4 &<3*4-*
/, A!41 A*(* 4*-*33&(5 -/41!.!/43 /, .2*
/<3*(=&.!/4 2* ;*&3. 4/!3* A&3 30,,!-!*4.
./ 1!3.0(< !. 04;*33 !41**1 .<* 4/!3* A&3
/--&3!/4*1 <5 /6*43 /, .*((/(# 307F
7/3!4> .2* &0>0(./ 2&=* /<3*(=*1 .2*6 /(
./ !4.*41 1/!4> 3/ 3 2* ;//D*1 3/0.2
.2* &0>0(2&1 .2* *&3. /4 2!3 ;*,. .2* A*3.
/4 2!3 (!>2. --8A1!4>;5 .2* /6&43
(*>&(1*1 3!>43 /4 .2* ;*,. 3!1* &3 /, 7(/3F
7*(/03 /6*4 3!>43 /4 .2* (!>2. 3!1* &3
04;0-D5 .2* *&3. <*!4> 1**6*1 .2* (*>!/4
/, ;!>2. .2* A*3. .2&. /, 1&(D4*33 2*
(*=*(3* A&3 .2* -&3* !4 &4-!*4. (**-*
A2*(* .2* /<3*(=*(;//D*1 4/(.2A&(13 4
2!3 /<3*(=&.!/4 /, <!(13 .2* &0>0(1!1 4/.
-/4,!4* 2!63*;, ./ 4/.!-!4> .2*!(,;!>2. 2*
<!(13 A*(* 1!3.!4>0!32*1 &3 &41
" 2* !4-;01*1 <!(13 ;!D*
*&>;*3 &41 =0;.0(*3 A2!-2 >&=* 3!>43 <5
.2*!(6&44*(/, ,;5!4> 2* " A*(*
<!(13 A2!-2 >&=* 3!>43 <5 .2*!(-(5 &3 A*;;
&3 .2*!(,;!>2. 30-2 &3 (&=*43 /A;3 &41
-(/A3 ,!*(* A*(* &;3/ <!(13 A2!-2 A*(*
2*;1 3&-(*1 ./ 7&(.!-0;&(>/13 &41 .2* 6*(*
&77*&(&4-* /, A2!-2 A&3 &4 /6*4 /,
>//1 /(*=!; 2* &0>0(3 (*7/(. A&3
*07(*33*1 !4 .2* A/(13 " !
H .2* <!(13 &;;/A !. I /(H /4
&4/.2*(1&5 I H .2* &0> (5 !3 7/3.F
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.2!3 (*7/(. 2* 3-!*4-* /, &0>0(5 !4F
-;01*1 /.2*(D!413 /, &037!-*3 <*3!1*3 .2*
/<3*(=&.!/4 /, <!(13 & -06<(/03 7(/-*33
A2!-2 2&1 1(/77*1 /0. /, 3* !4 .2*
!-*(/4!&4 &>* #) (
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/, !67/(.&4. ,04-.!/43 4 -*(.&!4 7;&-*3
!4 .<* -!.5 ,/(!43.&4-* /4 .2* - &41 &.
.2* 6**.!4> 7;&-* /, .2* .2*(* A*(*
7*(6&4*4. 7/3.3 /, /<3*(=&.!/4 ,/(.&D!4>
.2* (*>0;&(&037!-*3 2*3* 7;&-*3 A*(* 70.
041*(.2* -&(* /, .2* &0>0(3 2*!(</04F
1&(!*3 6!>2. 4/. <* &;.*(*1 4/(.2* =!*Ad

A2!-2 .2*5 -/6 6&41*1 !4.*(,*(*1 A!. 2* &4>4(3 2&1 &0.2/(!.5 ./ 7(*=*4. .2* *(*-.!/4 / ,<0!;1!4>3 A2!-2 A/0;1 1/ .2!3 2*5 2&1 &;3/ .2* 7/A*(/ , -/43*-(&.!4> 7(!*3.3 &3 A*;;&3 /, !4&0>0(&.!4> &7&(. /, .2*;/-&;!.!*3!4.*41*1,/(*(*;!>!/03 70(7/3*3 &41 .2* 7;&-*3 A2*(* 70<;!-<03!4*33 A&3 -&((!*1 /4 2*5 A*(* &;A&53 7(*3*4. &. .2* &41A*(*&0.2/(!Q*1 !, .2*3!>43 A2!-2 .2*5 3&A /(A2!-2 A*(* (*7/(.*1 ./ .2*6 K03.!,!*1 .2* 7(/-**1!4> ./ &44/04-* .2*,&-. &41 7/3.7/4* .2* <03!4*33 , .2* -/43.!.0.!/4&; -2&(&-.*(/ , &70<;!-&-. A&3 -&;;*1 !4 :0*3.!/4 .2* -/;;*>* /, &0>0(3 2&1 .2* *0-;03!=* 7/A*(/ 1*-!1!4> A2*.2*(* .2*(* A&3 &,;&A &!4 !. /(4./. , .2*(*A*(* .2* &-. A&3 4*-*33&(!;5 &440;:*1 5 .2* *41 /, .2* (*70<;!-&4 7*(!/1 .2* &0>0(3 &41 .2* A2/;* <03!4*33 /, .2* &037!-*3 2&1 -*&3*1 ./ <* (*>&(1*1 &3 1*3*(=!4> 3*(!/03 &..*4.!/4

!B3.&;*3 (*;!>!/03 &33/-!&.!/4 &. -6* ,/(6*1 ,/(.2* 6&!4.*4&4-* /, .2* A/(32!7 7&!1 ./.2* 1*!,!*1 3*3&(3 # 0 (&41 $

0>03.!403 # 2* >(*&.*3./, .2* &.!4 2(!3.!&4 ,&.2*(3 * A&3 </6 VC & &>&3.* !4 06!1!& !3 ,&.2*(A&3 &7&>&4 2!3 6/.2*(14!-& &Q*&;/03 2(!3.!&4 ,.*(& A!;1 ;!,* &3 &5/04> 6&4 2* <*-&6* 7(/,*33/(, (2*./(!-!4 &>&3.* (.2&>* /6* &41 !;&4 A2*(* 2* A&3 -/4=*(.*1 ./ 2(!3.!&4!.5 .2(/0>2 .2* !4,;0*4-* /, 6</(3* &41 <&7.!Q*1 !4 RU * (*.0(4*1 ./ ,(!-& &41 A&3 /(1&!4*1 7(*3<5.*(!4 T$ &41 <!32/7 /, !77/!4 06!1!& !4 T? * 1!*1 .2*(* !4 C N &,.*(1/!4> 60-2>//1!4 .2* -!.5 10(!4> !.3 3!*>* <5 .2* &41&;3 !3 ;!.*(&(5 &-.!=!.5 A&3 *0.(&/(1!4&(5 /0(5*&(3 <*,/(* 2!3 "1*&.2 2* (*-D/43 07 .2* 406<*(/, 2!3 A/(D3 *0-;03!=* /, ;*..*(3 &41 3*(6/43 &3 T 6&D!4> 07 @ </!D3 6/4> .2*6 &(* 3!0 </!D3 5 &41 *33&53 /4 (2*./(!-1!&;*-.!- &41 >(&66&(2*3* 7(/10-.!/43 A2!-2 .*3.!,5 ./ 2!3 !4.*(*3.!4 ;*&(4!4> A*(* !43.&;6*4.3/, &4 *4-5-;/7&*1!- A/(D/4.2* 3*=*4 ;!<*(&;&(.3 6/1*;;*1 07/4 .2* 5 " /, &((/ 6/4> 2!3 /.2*(A(!.!4>3 .A/ &..(&-.*1 *37*-!&; 4/.!-* /4 &--/04./, .2* *0.(&F /(1!4&(5* ,,*-.A2!-2 .2*5 7(/10-*1 !4 &,.*(.!6*3 2*3* &(* +($ " &2!3./(5 /, 2!3 !44*(;!,* !4 .2!(.**4 </!D3 A(!..*4 !4 .2* ,/(6/, &-/4,*33!/4 ./ .2* ;6!>2.5 &41 .2* 5 $ 5 &A/(D!4 .A*4.5 .A/ </!D3 1*6/43.(&.!4>.2* 7(/=!1*4.!&; &-.!/4 /, /1 !4 .2* 1*=*;/76*4./, 206&4 2!3./(5

0>03.03 fH -/43*-(&.*1 <5 &0>0(5I g 4 2/4/(&(5 .!.;* >!=*4 !4 .2* 5*&(@U ' " ./ -.&=!&403 .2* ,/041*(/, .2* /6&4 *67!(* .A&3 4/.2*(*1!.&(5 <0. A&3 .&D*4 <5 .2* 30--**1!4> *67*(/(& &. .2* !43. !-* /, .2* 3*4&.* & ,/(6&;!.5 A2!-2 A&3 &,.*(A&(13 1!37*43*1 A!.2 203 !. >(&10&;;5<*-&6*&4 /,,!-!&; .!.;* (/7*(;5 37*&D!4> !. -/0;1 /4;5<* &3306*1 <5 .2* &-.0&; 2/;1*(/, .2* !67*(!&; 1!>4!.5 4/. <5<!3 -/;;*&>0* &(-03 0(*;!03 A&3 .2* ,!(3. A2/ </(D* .2(/0>2 .2!3 (0;* 4 $?$ 2* -/4,*((*1 .2* *4.!(* !67*(!&; &0.2/(!.5 A!.2 .2* .!.;* /, 0>03.&3 07/4 0-!03 *(03 &,.*(A2/3* 1*&.2 2* *;*=&.*1 2!3 3/4 /66 103 ./ .2* 3&6* 7/3!.!/4 2!3 &((&4>*6*4. 2&1 .2* &1=&4.&>* /, 1!37*43!4> A!.2 .2* 4*-*33!.5 /, &,0(.2*((*//>4!.!-6 /, .2* -/;;*&>0* <5 .2* 3*4&.* &41 7*/7;* &,.*(.2* 1*&.2 / .2* (*!>4!4> *67*(/((.A&3 ,(*:0*4.;5 &1/7.*1 04.!; 041*(!/-;*.!&4 !. 1*=*;/7*1 !4./ .2* 1!=!3!/4 /, .2* *67!(* !4./ &4 *&3.*(4 &41*A*3.*(4 7/(.!/4 *&-2 041*(!.3 /A4 0>03.03

2* .!.;* / 1 A&3 (*3*(=*1 *0-;03!=*;5 ,/(.2* *67*(/(* <0. .2* -/(* (*37/416>,*6!4!4* 3.5;* /, 1 A&3 &3306*1 &3 .2* 2!>2*3. /, &;;2/4/0(3<5 .2*>(*&.;&1!*3 /, .2* !67*(!&; 2/03* 2* ,!(3. /, .2/3* A2/ </(* !. A&3 !=!& /4 A2/6 2*(203<&41 -.&=!&403 -/4,*((*1 !. <5 A!;; 2* A&3 ,/;;/A*1 <5 4./4!& A2/ (*-*!=*1!.,(/6 2*(>(&413/4 &;!>0;& 2* ,!(3.;&15 A2/ .//D !.&3 -/43/(./, .2* (*!>4!4> &*3&(A&3 >(!77!4& .2* .2!(1 A!,* /, ;&01!03 ,.*(/6!.!&4 3 .!6* !. <*-&6* .2* (0;* ./ -/4,*(.2* .!.;* /, 1 4/. /4;5 /4 .2* -/43/(./, .2* (*!>4!4> *67*(/((<0. /4 /.2*(3 &6/4> .2*!(4*&((*;&.!/43 *37*-!&;;5 %2*!(1&0>2.*(3 2!3 A&3 >*4*(&;;5 1/4* 07/4 3/6* &77(/7(!&.* /--&3!/4 &41 4*=*(A!.2F /0. .2* 37*-!&; -/43*4. /, .2* &*3&(4 ;&.*(.!6*3 !. A&3 >*4*(&;;5 .2* 3*4&.* A2/ ./D .2* !4!.!&.!=* !4 .2* 6&..*(

0;3*06 4;* /) 8 (**D9

0;13 0;*.!D* 0;11!D* 03!-

0(*;;&403#$ &.!4 A(!.*(/4 6*1!-!4* &4&.!=* /, !--&!4 06!1!& A2/ ,;/0(!32*1 !4 .2* V.2 -*4.0(5 * A&3 .2* &0.2/(/, .A/ A/(D3 /4 -0.* &41 2(/4!- !3*&3*3 .2* ,!(3. !4 .2(** .2* 3*-/41 !4 ,!=* </!D3 2*3* &(* .(&43;&.!/43 ,&!(;5 ;!.*(&; <0.&<(!1>*1 / ,A/(D3 <5 .2* (**D 7253!-!&4 /(&403 A2/ ;!=*1 !4 .2* ;&3. 2&; / .2* @41 -*4.0(5 G 3*;!03 &;3/ A(/.* & -/67*41!06 / ,.2* A2/;*

j *A &A&5 /(1*-;!4*1 !.3 ,//1 2!3 -;*&(&41 3!67;* 6*.2/1 /, >*..!4> /6*43 A&3 >*4*(&;;5&1/7.*1 <5&(6!*3 !4 .2* ,!*;1 .2* -2!-D*43 <*!4> .&!*4 &</0. !4 -2&(>* /, &7*-!&;, 04-.!/4&(5 # 3 ; 8C9 !>43 >!=*4 <5 .2* -(!*3 /(6/.!/4/, &4!6&;3 &3 (*7.!;*3 &41 :0&1(07*13 !4 .2*!(-/0(3* /=*(&>!=*4 7!*-* /,>(/041 # 1" ! /(8V9 !>43 >!=*4 <5 72*4/6*4&/,.*((/(# 1" - 2*3* 6!>2. -/43!3. !4 1!3.0(<&4-*3 /, .2* &-./,

' . . $ - A$?50G
8 (/6 L/*>& R ! .&(O=!9

30-2 &3 .2* ,&;;!4>/, &4 /<*-. &4/!3* &3.06<;* &3;!7 !4 .2* (*-!.&.!/4 /, .2* ,/(60;&# (& 1!3.0(<&4-* /--0((!4> !4 .2* -/0(3* /, 70<;!-<03!4*33 30-2 &3 ,/(!43.&4-* &4 *7!;*7.!- 3*!K6(* .&D!4> 7;&-* !4 .2* 70<;!- &33*6<;5 &4 *=*4. A2!-2 <(/D* 07 .2* 6**.!4>

2* .A/ ;&3."6*4.!/4*1 -;&33*3 /, 3!>43 A*(* >*4*(&;;5 4/. &3D*1 ,/(<*-&03* .2* ,/(6*(A*(* 030&;;5 .2* ;&..*(&;A&53 04F ;0-D5 , .2*5 6&1* .2*!(&77*&(&4-* 04&3D*1 .2*5 -/0;1 4/. <* 7&33*1 /=*(!, .2* /<3*(=*(3&A .2*6/(A!32*1 ./ 3** .2*6 B =*(5 /,,!-!&; A&3 *07*-.*1 ./ .&D* &037!-*3 /4 *4.*(!4> 07 4 2!3 /,,!-* &41 /4 *=*(5 /--&3!/4 /, 7*(,/(6!4> &4 /,,!-!&; &-. 203 .2* A/(13 &41 A*(* /,.*4 =!(.0&;;5 354/456/03 2* A*(* ,0(.2*(1!=!1*1 &--/(1!4> ./ .2* 1!>4!.5 /, .2* 6&>!3.(&.* !4./ -]H >(*&.*3.! 9 &41 " &P ;*33! 9 2* >(*&.*3. A*(* .2/3* A2!-2 A*(* .&D*4 <5 .2* D!4> 1!-.&./(-/430;3 7(&* ./(3 &41 -*43/(3 .2* ;*33*(A*(* .&D*4 <5 3*1!;*3 &41 :0&*3./(3 , .A/ 6&>!3.(&.*3 .2/0>2 1 8-/;;*&>0*39 A*(* /, 04*:0&;

1!>4!.5 [3077=/0!!> .0/.&4-* .2&. &-/4F 30; &41 7(&*./(A*(* !4 .2* 3&6* -&67 [".2* 2!>2*(/,,!-*(&;/4* 2&1 .2* (!>2. /, .&D!4> .2* &037!-*3 , .2* 1 A*(* *:0&; .2* &037!-*3 7&33*1 ,(/6 /4* ./ .2*/.2*(&. 3.&.*1 .!6*3 /70<;!- &-. A2*.2*(/, 7*&-* /(A&(8-(/33!4> &(!=*(, /(!43.&4-* /(,!>2.!4> &<&..;*9 -/0;1 <* 041*(.&D*4 GA!.2/0. &037!-*3 2*5 A*(* 37*-!&;;5 4*-*33&(5 &. .2* *;*-.!/4/, &;, ,!-!&;3 .2* *4.(5 07/4 &;;, /,,!-*3 &. &;; &41 &. .2* 1*7&(.0(* /, &(>*4*(&; ,/(&(2*5 2&1 ,0(.2*(./ <* .&D*4 /4 .2* &-.0&; 1&dB &41 &. .2* &-.0&; 7;&-* /, .2* >!=*4 041*(F .&D!4>

2* A2/;* 7(/-**1!4> &3 3/ &<03*1 .2&. !4 .!6* !. &4D !4./ &6*(* ,/(6 2!3 (*6&(D &77;!*3 *=*4 ./ .2* &037!-*3 .&D*4 ,(/6 ;!>2.4!4> .2* 6/3. !67/(.&4. 3!>4 /, &;; /(.2* ,;&32 /, ;!>2.4!4> A2!-2 A&3 !4 ;&.*(.!6*3 (*>0;&(;5 3077/3*1 ./ &77*&(A2*4 &6&>!3.(&.* *4.*(*1 07/4 /,,!-* A&3 &;A53 8&,.*(.2* 4*-*33&(5 ,/(6&;!.!*39 3*. 1/A4 &3 &77*&(!4> /4 .2* ;*, 3!1* /(*F /=*(.2* 6*(* &33*(.(.!/4/, &6&>!3.(&.* A2/ 2&1 .2* (!>2./, .2&. 2* 2&1 .&D*4 /<3*(=&.!/43 /4 &7&(.!-0;&(1&5 &41 3**4 &, ,;&32 /, ;!>2.4!4> &3 -/43.!.0.!/4F &;;5 4&33&!;&<* &41 A&3 -/43*:0*4.;5 /,.*4 03*1 ./ 70./,, & 6**.!4> /, .2* ,!O*1 ,/(.2* 1&5 !4 :0*3.!/4 0>03.03 !. !3 .(0* .(!*1 ./ (*2&<!;!.&.* .2* <0. .2*!(3077/3*1 (*;!>!/03 ,/041&.!/4 2&1 <**4 3/ .2/(/0>2;5 32&D*4 .2&. .2*5 2&1 ;/3. &;, 3*(!/03 3!>4!,!-&4-*

0. ;5-43 /4 /, *(6*3 &41 2, 4* /(8&--/(1!4> ./ &4/.2*(&--/04.9 2!; 4!3 ,&.2*(/, 4.!-;*!& .2* 6/.2*(/, 15 *03 4 (**D 65.2/;/>5 2* ,!>0(*1 &3 .2* 7(!4-* /, .2!*=*3 (/6 2!3 ,&.2*(2* !42*(!.*1 .2* >!,./, 6&D!4> 2!63*;, &41 &;; 2!3 3./;*4 >//13 !4=!3!<;* /(-2&4>!4> .2*6 3/ &3 ./ 7(*-;01* .2* 7/33!<;!.5 /, /(*-/>4!./!4 * A&3 &4 &--/67;!32*1 A(*3.;*(&41 A&3 3&!1 ./2&=*>!=*4 *(&-;*3!43.(0-.!/4!4 .2* &(.

0."6 14 `/4/, ! (*3 .2* -/6(&1* &41 -2&(!/.**(/, -2!;;*3

0;;;&8&00!;!&(5 .(//739 2!3 4&6* A&3 >!=*4 !4 .2* /6&4&(65./.2* ,/(*!>4 .(//73 3*(=!4> A!.2 .2* ;*>!/43 &41 ./ .2* -/4.!4>*4.3 /!, .&;!&4 &;;!*3 4 376* -&3*3 *37*-!&;;5 .2&./, .2* 3;!4>*(3 &41 &(-2*(3 .2*5 A*(* (&!3*1 <5 (** (*-(0!.!4> !4 /.2*(3 <5 &;*=5 !4 .2* 7(/=!4-*3 !4 /.2*(3 .2*5 A*(* 3*4. &3 -/4.!4>*4.3 <5 D!4>3 /(-/6F 604!.!*3 !4 &;;!&4-* A!.2 /6* 41*(.2* 67!(* .2* .*(6 - A&3 *0.*41*1 ./ &;; .2* -/(73 3.&.!/4*1 !4 .2* 7(/=!4-*3 &41 4/. !4-;01*1 !4 .2* ;*>!/43 &3 ,/(*0&67;*

.2*' 1!=!3!/43' /,' =*.*(&43' -&;;*1' - ' &41' .2*' -/2/(.3' -&;;*1' .&;!&4' ,/(6*1' /(!F >!4&;;5' /,' ,(**' .&;!&4' =/;04.**(3' .' A&3' 2/A*=*(' *67;/5*1' *37*-!&;;5' /,' .2*' -/(73' ;*=*!*1' !4' .2*' 7(/=!4-*3' A2!-2' ,0(4!32*1' .2*' 6&.*(!&;' 4/.' /4;5' /,' .2*' A2/;*' -&=&;(5' /,' .2*' /6&4' &(65' <0.' /,' &' 406<*(' /,' !4,&4.(5'1*.&-26*4.3'& (' - ' ,' .2*3*' 3/6*' A*(*' &(6*1' &41' .(&!4*1' !4' /6&4' ,&32!/4' /.2*(3' (*.&!4*1' .2*!(' 4&F .!/4&;'*:0!76*4.' /43*:0*4.;5'&'3.(!D!4>' =&(!*.5'/,' .(//73' 6!>2.' <*' /<3*(=*1' !4' .2*' A/=!4-!&;' &(6!*3'/,' /6*' # ' ' &41' 9

40/' 4*' /,' .2*' .A/' $(' /(' (&-*3' A/(32!77*1' &.' .2*43' # ' " -

=!&603' ' &.!4' A(!.*(' /,' ,&<;*3' *' 2&=*' &' -/;;*-.!/4' /,' ,/(.5".A/' ,&<;*3' !4' *;*>!&-' 6*.(*' A(!..*4' <5' 2!6' !.' 6&5' <*' -/4K*-.0(*1' !4' .2*' C.2' -*4.0(5' ' 2*' A/(D' !3' 1*1!-&.*1' ./' &' -*(.&!4' 2*/1/3!03' A!.2' -/67;!6*4.3' /4' 2!3' &-:0&!4.&4-*' A!.2' &.!4' ;!.*(&.0(*' *' !3' 7*(2&73' ./' <*' !1*4.!,!*1' A!.2' .2*' A*;;"B/A4' 3-2/;&(2*/1/3!03' &*(<!03' 2*' 1*1!-&.!/4' !3' !4' 7(/3*' &41' 3.&.*3' .2&.' .2*' &0.2/(3' 6/1*;3' A*(*' 23*1(03' &41' &<(!03' 2*' <//D' A&3' ;&(>*;5' 03*1' !4' 3-2//;3' &41' -/43*:0*4.;5' A&3' 60-2' *4;&(>*1' 7&(&72(&3*1' &41' !6!F .&.*1' !4' .2*' !11;*' >*3' 2*' (*30;.' 6&5' <*' 3**4' !4' .2*' > ' " ' /,' ;*0&41*(' *-D&6' A(!..*4' !4' .2*' $ .2' -*4.0(5 =!*443' #7 ' A ' ' &.!4' 7/*.' 4&.!=*' /,' /;3!4!' !4' .(0(!&' 7(/"-/430;' /,' ,(!-&' !4' ??' &41' /,' -2&!&' !4' U@' ' *' A&3' .2*' &0.2/(' /,' &' .&3.*,0;' &41' 3-2/;&(;5' .(&43;&.!/4' !4' 2*0&6*.*(3' /,' .2*' ,(" 2 " ' /,' (&.03' &41' /,' .2*' */>(&725' /,' !/453!03' *(!*>`.*3' #5 ' ' + ' &3' A*;;' &3' /,' &' 7!*-*' -&;;*1' (&' , ' /(' &' 1*3-(!7.!/4' /,' .2*' -/&3.3' /,' .2*' *1!.*((&4*&4' ;&-D' &41' &37!&4' *&3' 2!3' A&3' <&3*1' /4' =*(5' &4-!*4.' &0.2/(!.!*3' &41' A(!..*4' !4' !&6<!-3' 4;5' &' ,(&>6*4.' /,' .2*' ,!(3.' <//D' (*6&!43' 1*3-(!<!4>' .2*' *1!.*((&4*&4' -/&3.' ,(/6' .2*' .;&4.!-' & ' ,&(' &3' &(3*!;;*3 0&6*4.&' 2*' &4-!*4.' 256 43:304>' <5' .2*' J;!!' # ' $

&<(!03' 8 (**D9' 2*' -/67!;*(' /,' &' -/67(*2*43!=*' -/;;*-.!/4' /,')3/73' ,&<;*3' !4' -2/;!&6<!-' 6*.(*' 2*' </D' !3'7(/<&<;5' ./' <*' &33!>4*1' ./' .2*' <*>!44!4>' /,' .2*' (1' -*4.0(5' ' 4.!;' $RCC' 4/.2!4>' A&3' D4/A4' /,' &<(!73' <0.' ,(&>6*4.3' &41' 7&(&72(&3*3' <*&(!4>' .2*' 4&6*' /,' ! 3/703' # ' B 3/703' 0.' !4' .2&.' 5*&(' (**D' !4/!1*3' !4&3' 1!3-/=*(*1' $@' /,' .2*' /(!>!4&;' ,&<;*3' !4' &' 6/4&3.*(5' /4' /04.' .2/3' 4' $RVU' 2*' </0>2.' /0.' TV' 6/(*' .2*' >*40!4*4*33' /,' A2!-2' !3' 1!370.*1' 2*' 3.5;*' /,' &<(!03' !3' 3!67;*' &41' 7;*&3!4>' .2*' ./4*' ,(*32' &41' ;!=*;5 &--2&4&;!&' &--203' ' &--2K. 1*3' ' (**D' ;5(!-' 7/*.' A2/' ,;/0(!32*1' !4' .2*' 6!11;*' /,' .2*' V.2'-*4.0(5' -' *' A&3' &' 4&.!=*' /,' ;0;!3' !4' .2*' !3;&41' /,' */3' .2*' 4*72*A' &41' 707!;' /,' !6/4!1*3' &41' &' -/4.*67/(&(5' /,' !41&(' /(' &' ;/4>' .!6*' 2*' ;!=*1' A!.2' 2!3' 04-;*' &.' .2*' -/0(.' /,' !*(/' .5(&4.' /,' 5(&-03*' *' &;3/' (*3!1*1' ,/(' &' -/43!1*(&<;*' .!6*' &.' .2*43' A2*(*' 2*' A/4' 6&45'=!-./(!*3' !4' .2*' 1!.25(&6<!-' -/4.*3.3' &.*(' /4' 2!3' 2/6*' A&3' !4' .2*' *;/7/44*3*' .' A/0;1' &77*&(' .2&.' 2*' &.F .*67.*1'./'(!=&;' .2*' 6&45"3!1*1'.&;*4.'/,' 2!3' 04-;*' <0.' ,*;;' <*2!41' 2!6' !4' 30<;!6!.5' &41' ,/(-*' 4;5' &' ,*A' ,(&>6*4.3' /,' 2!3' 7/*63' (*6&!4' *' &..*67.*1' &' >(*&.' =&(!*.5' /, 3.5;*3' 25643' 7&*&43' 1!.25(&6<3' 1(!4D!4>' 3/4>3' ;/=*"3/4>3' &41' *7!>(&63 412&'%1)' 45# 7' 2*' /(!>!4&;' -03./6' !4' (**-*' &41' .&;5' A&3' ./' >(!41' .2*' -/(4B' &41' <&D*' .2*' 4*-*33&(5' 3077;!*3' &.' 2/6*' &' 03&>*' A2!-2' 6&!4.&!4*1' !.3*;,' !4' ;&(>*' 2/03*3' *=*4' &,.*(' >(!41!4>' &41' <&D!4>' 8,/(' .2*' ./A' A*4.' />*.2*(9' 2&1' <*-/6*' &' 3*7&F (&.*' .(&1*' &D*(3',!(3.'&77*&(' !4' (**-*' &3' &' 1!3.!4-.' -;&33' !4' .2*' V.2'-*4.0(5' (' ! !4' /6*' .2*(*' !3' 4/' 3!>4' /,' .2*6' .!;;' &</0.' (' U' 2*' 6!;;*(3' /(' H' 7/041*(3!' # M I' &.' /6*' A*(*' 030&;;5' *!.2*(' ,(**16*4' /(' -!.!Q*43' /,' &' ;/A' -;&33' <0.' .2*' 7/3!./4' /,' .2*' .(&1*' A&3' !67(/=*1' <5' .2*' -&(*' .&D*4' <5' .2*' .&.*' ./' 7(/=!1*' >//1' &41' -2*&7' <(*&1' /,' ,0;;' A*!>2.' 3' *&(;5' &3' .2*' .!6*' /,' 0>03.03' .2*' .&.*' A&3' 3*(=*1' <5' & 1' /(' >0!;1' /,' <&D*(3' A2!-2' A&3' 30<3*:0*4.;5' /(>&4!Q*1' <5' (&K&4' 4' 2!3' .!6*' !.' -/43!3.*1' /,' ' 6*6<*(3' 4/6!F 4&.*1' <5' .2*' *67*(/(' A!.2' 37*-!&;' 7(!=!F ;*>*3' &41' 30</(1!4&.*' ./' .2*' " " ' # ' ' 4' .2*' (1' -*4F .0(5' ' .2*' 6/4.2;5'1!3.(!<0.!/4' /,' <(*&1' A&3' 30--**1*1' <5' &' 1&!;5' /4*' 2!3' 4&.0F (&;;5' ;*1' ./' &' -/43!1*(&<;*' !4-(*&3*' !4' .2*' 406<*(' /,' 70<;!-' <&D*(!*3' .' .2*' <*>!4F 4!4>' /,' .2*' C.2' -*4.0(5' ' .2*(*' A*(*' %@VC' 1!3.(!<0.*1' .2(/0>2' .2*' ,/0(.**4' V

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&.23' &(6' <&.23' A*(*' ,/(' &' ;/4>' .!6*' /4;5' 03*1' <5' .2*' (**D3',/(' *0-*7.!/4&;' 70(7/3*3' ./' .&D*' .2*6' .//' /,.*4' <*!4>' (*F >&(1*1' &3' &' 6&(D' /,' *,,*6!4&-5' .' A&3' /4;5' &,.*(' .2*' !4.(/10-.!/4' /,' &(.!,!-!&;' <&.2!4>"7;&-*3' 70<;!-' &41' 7(!=&.!8"1#! 4*,&9' .2&.' .2*5' -&6*!4./',&32!/4' *37*-!&;;5' <*,/(*' 6*&;3' 0-2' <&.23' A*(*' /,.*4' &..&-2*1' ./' .2*' 1: " < ' 2*' (**D3' 2/A*=*(' 4*=*(' &..&!4*1' !4' .2!3' 6&..*(' ./' .2*';000(5' /,' .2*' /6&43' 041*(' .2*' 67!(*' /' .&D*' &' 2/.' 1(5' &!("<&.2' !4' /(1*(' ./' 7(/6/.*' 7*(37!(&" .!/4K',/;;/A*1' <5' &' -/;1' <&.2' A&3' &' 7*-0;!&(' ,&32!/4' /,' .2*' &-*1&*6/4!&43' 2*' &4-!*4.' -03./6' &.' /6*' A&3' ./' .&D*' &' <&.2' *=*(5' A**D' !4' .2*' ' " ' /(' A&32"2/03*' 4*&(' .2*' D!.-2*4' 0.' &,.*(' .2*' *-/41' 04!-' &(' <,&.2!4>' *3.&<;!32 6*4.3' /4' .2*' S(**D' 6/1*;' 6&1*' .2*!(' &77*&(&4-*' &41' .2*' &,.*(4//4' 2/0(' <*.A**4' .A/' &41' .2(**' A&3' >!=*4' 07' ./' .2*' <&.2' A2!-2' A!.2' >5 6 4&3.!-3' -&6*

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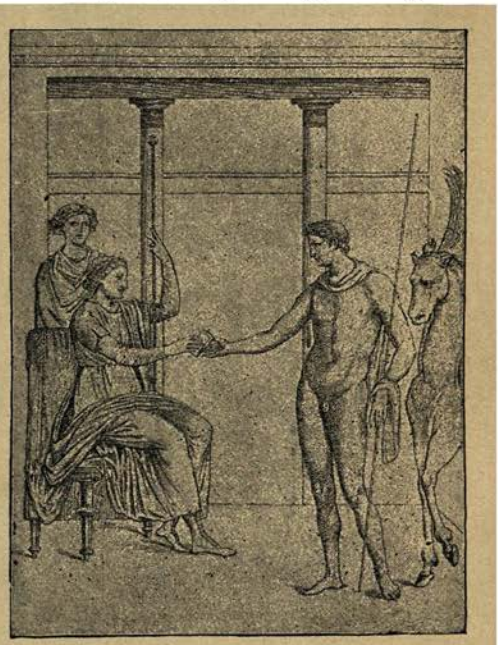
term, but to any kind of couch, as, for instance, to the sofas used at meals (*see* TRICLINIUM) or for reading and writing. The frame rested on four feet, and sometimes had no support at all, sometimes one for the head, sometimes one at each end for head and feet, sometimes one at the side. It was made of wood or bronze, and was usually richly adorned on the parts exposed to view. If of wood, these ornaments would consist of inlaid work of fine metal, ivory, tortoiseshell, amber, and rare coloured woods; if of bronze, they would be sculptures in relief. The mattress (Gk. *knĕphallŏn, tyleiŏn*, Lat. *tŏrus, culcĭta*) was supported on girths stretched across the frame, and was stuffed with vegetable fibre, woollen flock, or feathers, and covered with linen, wool, or leather. Cushions were added to support the head or elbow (Gk. *proskĕphălaiŏn*, Lat. *pulvīnus* or *cervīcāl*). Coverings for the sleeper were spread over the mattrass, which in wealthy houses would be dyed purple, or adorned with patterns and embroidery. If the bed was high, it would have a footstool attached. At Pompeii couches have often been found built up in the niches of the sleeping apartments. (For various forms of Greek bedsteads, *see* the engravings.) *Cp.* FULCRA.

Bellĕrŏphōn or **Bellĕrŏphontēs.** Son of Glaucus of Corinth (or according to another account, of Poseidōn), and grandson of Sīsўphus. His proper name is said to have been Hippŏnŏēs; the name Bellerophontes implies that he was the slayer of some now unknown monster. In later times his name was wrongly explained as the slayer of a certain Corinthian, Bellĕrŏs, on account of which he was supposed to have fled to Prœtus at Tīryns, or (as Homer has it) at Corinth. The wife of Prœtus, Anteia (or Sthĕnĕbœa), falls in love with the beautiful youth: he is deaf to her entreaties: she slanders him to her husband, who resolves on his destruction. He sends Bellerophon to Lycia, to his father-in-law Iobătēs, with a tablet in cypher, begging him to put the bearer to death. Iobates first commissions Bellerophon to destroy the fire-breathing monster Chimæra, a task which he executes with the help of his winged horse Pēgăsus (*see* PEGASUS). Thereupon, after a fierce battle, he conquers the Sōlўmi and the Amazons, on his return slays an ambush of the boldest among the Lycians, and Iobates now recognises his divine origin, keeps him with him, and gives him the half of his kingdom, and his daughter to wife. The children of this marriage are Isander, Hippolŏchus, the father of Glaucus and Laodamīa, and the mother of Sarpēdōn by Zeus. Afterwards Bellerophon was hated by all the gods, and wandered about alone, devouring his heart in sorrow. His son Isander was killed by Arēs in battle against the Solymi, while Laodamia was sacrificed to the wrath of Artĕmis. This is the Homeric version; but, according to Pindar, Bellerophon's high fortune made him so overweening that he wished to mount to heaven on Pegasus; but Zeus drove the horse wild with a gadfly, and Bellerophon fell and came to a miserable end. He was honoured as a hero in Corinth, an enclosure being consecrated to him in the cypress grove of Craneion.



* THE DEPARTURE OF BELLEROPHON.
(From a mural painting, Pompeii.)

Bellōna. (1) The Roman goddess of war. An old Italian divinity, probably of Sabine origin. She was supposed to be wife or sister of Mars, and was identified with the Greek Enўō. Her temple, which was situated in the Campus Martius, outside the old *pōmērium*, was used for meetings of the senate when it was dealing with the ambassadors of foreign nations, or Roman generals who claimed a triumph on their return from war. It must be remembered

.2&.' 041*(' 30-2' -!(-063.&4-*3' &' >*4*(&;' 6!>2.'4/.'*4.*(' .2*' -!.5' 2*'7!:;&(' /,' A&(' #$ " ' . ' 3./!1' 2&(1' <5' .' A&3' ,(/6' .2!3' &3' (*7(*3*4.!4>' .2*' </041&(5' /,' .2*' *4*6533' .*((!./(5' .2&.' .2*' A ' .2(*A' 2!3' ;&4-*' /4' 1*-;&(!4>' A&(8!9' S0!.*'&'1!,,*(*4.'>/11*33'!3'.2*' *;;/4&' A2/6'.2*' /6&4'>/=*(46*4.'<(/0>2.',(/6' /6&4&'!4' &77&1/-!&' ./A&(13' .2*' <*>!4F 4!4>' /,' .2*' 3.' -*4.0(5' (' 10(F !4>'.2*' !.2(!1&.!-' A&(' 2!3' *;;/4&' A&3' A/(32!77*1' !4' &'1!,,*(*4.';/-&;!.5' &41' A!.2' &'3*(=!-*' -/410-.*1' <5' &7F 7&1/-!&4' 7(!*3.3' &41' 7(!*3.*33*3 2*3*' " ' 830-2' A&3' .2*!(' 4&6*9' 6/=*1' .2(/0>2' .2*' -!.5' !4' 7(/-*33!/4' &.' .2*',*3.!=&;3'/,' .2*' >/11*33' !4' <;&-D' (&!6*4.' &41' 32*1' .2*!(' <;//1' &.' .2*' 3&-(!,!-*'A/041!4>' .2*63*;=*3',/(' .2*' 70(7/3*!4' .2*' &(63' &41';/!43'A!.2' &' .A/" *1>*1' &0*' &41' 7(/72*35!4>' &61!' &' A!;1' 4/!3*' /,' 1(063' &41' .(067*.3 *;43' /4' /,' !<5&' >(&411&0>2.*(' /,' ;/' &41' /3*!1/4' &.2*(' /,' >57.03' &4&!!3' *72*03' &41' 2;4*03 *41!3' ' >/11*33' /,' .2*' 6//4' &6/4>' .2*' 2(&-!&43' 2*' A&3' !4=*3.*1' A!.2' 7/A*(' /=*(' 2*&=*4' &41' *&(.2' &41'!1*4.!,!*1' <5' .2*' (**D3' A!.2' (.*6!3' *-.*' &41' *(3*72/4*' 2*' A/(32!7' /,' .2!3' >/11*33' A&3' !4.(/10-*1' !4./' ..!-&' <5' 2(&-!&4' &;!*43' &41' A&3' 3/' 7/70;&(' .2&.' !4' ;&./3' .!6*' !.' <*-&6*' &' 3.&.*' -*(*6/4!&;' &.' .2*43' ' 70<;!-' ,*3.!=&;' A&3' !43.!.0.*1' -&;;*1' .2*' " !' &.' A2!-2' .2*(*' A*(*' ./(-2"(&-*3' &41' &' 3/;*64' 7(/-*33!/4' /,' .2*4!&43' &41' 2(&-!&43' &.' .2*' !(&*03 *(/343' ' (**D' A(!.*(' </(4' !4' !.254!&' &41' &' 7(!*3.' /,' *;03' *' ;!=*1' &3' *&(;5' &3' .2*' .!6*' /,' ;*0&41*(' .2*' (*&.' &41' &</0.' ' @RN' A(/.*' &' A/(D' 1*1!F -&.*1' ./' D!4>' 4.!/-203' /.*(' /4' &<5;/F 4!&4' 2!3./(5'!4' .2(**' </!D3' # : " ' /(' $(' 2*' A/(D' 603.' 2&=*' <**4' %/,'>(*&.'=&;0*' &3' !.' A&3',/041*1' /4' &4-!*4.' 7(!*3.;5'-2(/4!-;*3' 7(*3*(=*1'!4' .2*' .*67;*' /,' *;03' &.' &<5;/4' .3'!67/,.&4-*' &3' &4' &0./(!.5',/(' .2*' &4-!*4.' 2!3./(5' /,' 3!& !3' ,0;;5' &..*3.*1' <5' .2*' ,(&>6*4.3' .2&.' (*6&!4'd!4' 37!.*' /,' .2*!(' 3-&4.5' 406<*(' &41' 1!3/(1*(*1'&((&4>*6*4. *3.!&(!!' ' " ' (!&3' ' (' &41' 0 &) !<;!/7/;&' ' ? !1*4.&;' #7 " ' ' -/43*-(&.*1' 37/;' A2*(*';!>2.4!4>'2&1'7&33*1'!4./.2*'>(/041' # ' 0 9 !1B"3*' # " ' ') (!>&' ' " ( ) ' &6*3'/, !D13'8 (**D9' 1 !/4' ' (**D' <0-/;!-'7/*.' A2/',;/0(F !32*1' !4' .2*' 3*-/41' 2&;',' /,' .2*' !41' -*4F .0(5' -' *';!=*1'6/3.;5'!4' !-!;5'A2*(*' 2*'!3'3&!1'./'2&=*' 1!*1' <5'7/!3/4'*' *3!1*3' &'406<*(' /,' 6!4/(' 7/*63',(/6'2!3'2&41'A*' 2&=*' &' ;/4>' 1*3-(!7.!=*' *7!-' -&;;*1' +(' 5 1 ' ' " ' !3'3.5;*'!3'6/(*'(*6&(DF &<;*',/(' >(&-*' .2&4',/(' 7/A*(' /(' 3!67;!-!.5 1*1(16!&' ' ,*3.!=&;' 2*;1' &.' .2*43' !4' 2/4/0(' /,' 7/;;/' ' .2*' >/1' A2/'>&=*'&!1'!4' <&..;*' .'A&3' -*;*<(&.*1' /4' .2*' ".2'1&5' /,' .2*' 6/4.2' /*1(6!/4' 3/' 4&6*1' &,.*(' .2*' >/1' 8 *7.*6<*(" -./" <*(9' 2*' /(!>!4' /,' .2*',*3.!=&;'A&3'.(&-*1' <&-D'!4'&4.!:0!.5'./'.2*' =!-./(5' /,' /4' /=*(' 06/;703' /(' ./' .2&.' /,' 2*3*03' /=*(' .2*' 6&Q/43' ,..*(' CTN' '!.' A&3' -/4=*(.*1' !4./' &' -/66*6/(&.!/4' /,' .2*' <&..;*' /," &(&.2/4 /*/.&(-2!' 2*' 2!>2*3.' /,,!-!&;3' /,' .2*' /*/.!&4' -/4,*1*(&-5' .A/' /,' A2/6' A*(*' &;A&53'-2/3*4'<5' 2*<*3' &3' .2*' -2!*,' ./A4' !4'!.' &41' /4*' <5'*&-2' /,' .2*' /.2*(' ./A43' 2*5'2*;1'.2*'7/3.'/4;5',/(' &'5*&(' <0.' A*(*' -&7&<;*' /,' (*"*:*-.!/4' !4' 30--*33!=*' 5*&(3' 2*!(' -2!*,' 10.!*3' A*(*' ./' -/66&41' .2*' .(//73' /,' .2*' -/4,*1*(&-5'!4' .!6*' /,' A&(' &41' *0*-0.*' .2*' 1*-(**3' /,' !.3' -/04-!; 1*.2!43' # " ' " ' + ' " ' /*.2!03' A&3' </(4' !4' /6*' &</0.' CU?' ' &41' <*;/4>*1' ./' .2*' 1!3F .!4>0!32*1',&6!;5' /,' .2*' 4!-!!' A2/' 2&1',/(' 3/6*' .!6*' <**4' 2(!3.!&43' &=!4>' <**4' ;*,.' &4' /(72&4' !4' 2!3' -2!;12//1' 2*' A&3' .&D*4' !4' 2!3' .*4.2' 5*&(' ./' .2*43' A2*(*' 2*' (*6&!4*1' *!>2.**4' 5*&(3' &41' &-F :0!(*1' &' 3./-D' /,' D4/A;*1>*' ,&(' <*5/41' .2*' &=*(&>*' ,.*(' 2!3' (*.0(4' ./' /6*' 2*' A&3' 2*;1' !4' 2!>2*' *3.**6' &6/4>' 2!3' -/4" .*67/(&(!*3',/(' 2!3';*&(4!4>' &41' *;/:0*4-*' B' *' &..(&-.*1' .2*' &..*4.!/4' /,' 2*/1/(!-' A2/' !4' ?$N' ' 6&1*' 2!6' -/430;' &41' !4' 37!.*' /,' 2!3' 7&.(!/.!-' &41' !41*7*41*4.' &..!F .01*' >&=*' 2!6' &' 7(/6!4*4.' 32&(*' !4' .2*' >/=*(46*4.' 2*' .(!&;' /,' .2*' -/430;' ;" <!403' 2/A*=*(' </(0>2.' A!.2' !.' .2*' (0!4' /,' /*.2!03' ;<!403' A&3' &--03*1' /,' 6&!4"

.&!4!4>' &' 3*-(*.' 041*(3.&41!4>' "&1.2' .2*' 5Q&4.!4*' -/0(.' &41' /*.2!03' 3.//1' 07' </;1;5' !4' 2!3' 1*,*4-*' 1*-;&(!4>' .2&.' !,' ;<!403' A&3' >0!;.5' 3/' A&3' 2*' &41' .2*' A2/;*' 3*4&.*' A!.2' 2!6' 203' !4=/;=*1' !4' .2*' &6*' -2&(>*' 2*' A&3' 3*4.*4-*1' ./' 1*&.2' <5' .2*' -/A&(1;5' &33* 6<;5' A2/3*' -&03*' 2*' 2&1' (*7(*3*4.*1' *' A&3' .2(/A4' !4./' 7(!3/4' &.' &=!&' &41' *0*-0.*1' !4' ?@V

2*' 6/3.' ,&6/03' /(D' /,' /*.2!03' 2!3' $ "' ', ((:!' A&3' GA(!..*4' !4' 7(!3/4' .' A&3' 60-2' (*&1' !4' .2*' !11;*' >*3' &41' .(&43;&.*1' !4./' *=*(5' 7/33!<;*' ;&4>0&>*' 2*' </!D' !3' .2(/A4' 7&(.;5' !4./' .2*' ,/(6'/,' &' 1!&;/>0*' !4' A2!-2' .2*' !4.*(F ;/-0./(3' &(*' .2*' &0.2/(' &41' ,((A2/' &77*&(3'./' 2!6'./' -/43/;*' 2!6' 3' !4' .2*' *4!77*&4' < ' & ' .2*' %4&((&.!=*' !3' (*;!*=*1' <5' .2*' /--&3!/4&;' !4F 3*(.!/4' /,' 603!-&;' =*(3*3' !4' =&(!/03' 6*.(*3' 2*' -/43/;&./(5' &(>06*4.3' &(*' 3.(!-.;5' 72!;/3/72!-&;

/*.2!03' A&3' &.'>(*&.' 7&!43' ./' 6&D*' ;(**D ;*&(4!4>' &--*33!<;*' ./' 2!3' -/4.*67/(&(!*3' <5' 6*&43' /,' .(&43;&.!/43' /,' &41' -/66*4F .&(!*3' 07/4' (**D' </!D3' /4' 72!;/3/725' 6&.2*6&.!-3' (2*./(!-' &41' >(&66&(' /(' .2!3' .2*',/;;/A!4>' &>*3' A*(*' 60-2' !41*<.*1' ./' 2!6' !3' (!.!4>3' A2!-2' A*(*' 03*1' &3' 4b&40&;3' .2(/0>2/0.' .2*' !11;*' >*3' A*(*' .2*' 6&!4' 3./(*7/03*' /,' 3*-0;&(' D4/A;*1>*' 10(!4>' .2&.' 7*(!/1' 2!3' !3' *6!4*4.;5' .(0*' /,' 2!3' 406*(/03' 72!;/3/72!-&;' A/(D3' &41' *37*-!&;;5' /,' 2!3' .(6!3;&.!/43' /,' (!3./.;*' A2!-2' *0*(-!3*1' !66*43*' !4,;0*4-*' 07/4' .2*' 3-2/;&3.!-' 72!;/3/725

14&' "&' 8H' .2*' >//1' >/11*33' I9% ¢ 4' .&;!&4'1*!.5' 3077/3*1'./' 7(*3!1*' /=*(' .2*' *&(.2' &41' &;;' .2*' <;*33!4>3' A2!-2' 37(!4>' ,(/6'!.' 2*' A&3' &;3/' .2*' 7&.(/4' >/11*33' /,' -2&3.!.5' &41',(0!.,0;4*33' !4' A/6*4' 2*' 4&6*3' A " ' ' ' A*(*' /(!>!4F &;;5'4/' 6/(*'.2&4'=&(5!4>'&77*;;&.!/43'>!=*4' <5' .2*' 7(!*3.3' ./' .2*' " ' 5 ' 2*' !3' (*7(*3*4.*1' !4' A/(D3' /,' &(.' "A!.2' &' 3-*7.(*' !4' 2*(';*,.' 2&41' &' A(*&.2' /,' =!4/';*&=*3' /4' 2*(' 2*&1' &41' &' K&(' /,' A!4*' &.' 2*(' 3!1*' *&(' 2*(' !6&>*' A&3' &' -/43*-(&.*1' 3*(7*4.' !41**1' &' 406<*(' /,'.&6*' 3*(7*4.3' A*(*' D*7.' !4' 2*(' .*67;*' 'A2!-2' A&3' 3!.0&.*1' !4' /6*' /4' .2*' 3;/7*' /,' .2*' =*4.!4*' ;;' D!413' /,' 2*&;!4>' 7;&4.3' A*(*' 7(*3*(=*1' !4' 2*(' 3&4-F .0&(5' 2*' A&3' (*>&(1*1' !4' /6*' &3' &4' &03.*(*' =!(>!4' >/11*33' A2/3*' .*67;*' 6*4' A*(*' ,/(<!11*4' ./' *4.*(' 2*' <*;/4>*1' &--/(1!4>;5' ./' .2*' -!(-;*' /,' 1*!.!*3' A2/' A*(*' A/(32!77*1' <5' .2*' *3.&;' !(>!43' 2*' &44!=*(3&(5'/,' .2*' ,/041&.!/4' /,' 2*(' .*67;*' A&3' 2*;1' /4' .2*' $3.' /,' &5' A2*47 ' '

7(&5*()' A*(*' /,,*(*1' 07' ./' 2*(' ,/(' .2*' &=*(.!4>' /,' *&(.2:0&D*3' *3!1*3' .2!3' &3*-(*.',*3.!=&;' A&3' 2*;1'./' 2*(' /4' <*2&;' /,' .2*' 70<;!-' A*;,&(*' !4' .2*' 2/03*' /,' .2*' /,,!-!&.!4>' -/430;' /(' 7(&*./(' /,' .2*'-!.5' <5' 6&.(/43' &41' .2*' *3.&;' !(>!43' /4' .2*' 4!>2.' /,' &5' R"C' 2*' 6!3.(*33' /,' .2*' 2/03*' 7(*3!1*1' /' 6&4' A&3' &;;/A*1'./' <*' 7(*3*4.'&.' .2!3' -*;*<(&.!/4' /(' *=*4' ./' 2*&(' .2*' 4&6*' /,' .2*' >/11*33' ,.*(' /,,*(!4>' &' 3&-(!,!-*' /,' 30-D!4>' 7!>3' .2*' A/6*4' 7*(F ,/(6*1' &' 1&4-*' &--/67&4!*1' <5' 3.(!4>*1' &41' A!41' !43.(06*4.3' . 41*(' .2*' 67!(*' .2*',*3.!=&;' 1*>*4*(&.*1' !4./' &' 653.!-' 7*(F ,/(6&4-*' /,' *0.(&=&>&4.'-2&(&-.*(

41(06'*67.;1' 2*' .*-24!-&;' .*(6' !4' /6&4' K0(!37(01*4-*' ,/(' .2*' 3*!Q0(*' /,' >//13' ,' &' 6&4' 3*4.*4-*1'./' 7&5' &'-*(.&!4' 306'1!1' 4/.' 7*(,/(6' 2!3' /<;!>&.!/4' A!.2!4' .2!(.5' 1&53' .2*' -(*1!./(' /<.&!4*1' 7*(6!3F 3!/4',/6' .2*' 7(6./(' /' &..&-2' 2!3' >//13' ,,*(' &' (*4*A*1' (*37!.*' /,' .2!(.5' 1&53' .2*' 3&;*' ,/;;/A*1' <5' &0-.!/4' ./' .2*' >2*3.' <!11*(' .2*' !4.*41!4>' 70(-2&3*(' <!11!4>',/(' .2*' A2/;*' 7(/7*(.5' A!.2' !.3' &33*.3' &41' ;!&<!;!.!*3' 2*',/(6*(' 7(/7(!*./(' 6!>2.' !4.*(=*4*' &41' 7(/6!3*' 7&56*4.' &.' &45' .!6*' <*,/(*' .2*',&;;' /,' .2*' 2&66*(' 2*' 7(/7*(.5' /4-*' D4/-D*1' 1/A4' ./' 2!6' .2*' <05*(' <*-&6*' .2*' &<3/;0.*' /A4*(' '7*(F 3/4' &>&!43.' A2/6' .2*3*' 7(/-**1!4>3' A*(*' .&D*4'!4-0((*1' "

"403' =*4.03' ' + D$

//D3' &41' //D".(&1*' 2*' (**D3' A*(*' *&(;5',&6!;!&("A!.2' .2*' 7(&-.!-*' /,' 60;.!7;5F !4>' -/7!*3' /,' </!D3' <5' .(&43-(!7.!/4' *!.2*(' ./' 7(!=&.*' /(1*(' /(',/(' 70<;!-' 3&;*' 3',&(' <&A' &3' .2*'V.2' -*4.0(5' .2*' .2*4!&43' 2&1' &' 37*-!&;' 7;&-*' !4' .2*!(' 6&(D*."7;&-*',/(' 3*;;!4>' </!D3' &41' !.' !3' -;*&(;5' *3.&<;!32*1' .2&.' &' (*>0;&(' </!D",&!(' *0!3.*1' &.' .2*43' <5' &<0.' NN' (' 4' /6*'./A&(13' .2*' *41' /,' .2*' (*70<;!-&4' &>*' .2*' <03!4*33' /,' -/75!4>' </XB' &41' .2*' </!D".(&1*' !4' >*4*(&;' 1*=*;/7*1' /4' &' ;&(>*' 3-&;*' &41' !.' <*-&6*' &' ,&32!/4&<;*' .2!4>' ./' 7/33*33' &' ;!<(&(5' 2*' </!D".(&1*'!4'.2*' 7(/7*('3*43*' /,' .2*' .*(6'/A*3' !.3' *0!3.*4-*' ./' ..!-03' .2*' A*;;"D4/A4' ,(!*41' /,' !-*(/' *' D*7.' &' 406<*(' /,' ;' 3;&=*3' 3D!;;*1'!4' 32/(.2&41' &41' -&;;!>(&725' & ' A2/6' 2*' 3*.' ./' -/75' &' 406<*(' /,' !-*(/3' A(!.!4>3' A2!-2' 2*' .2*4' 1!37/3*1' ' &.' &' -/43!1*(&<;*' 7(/,!.' !4' .&;5' &41' (**-*' !3' *0&67;*' A&3' 3//4' ,/;F ;/A*1' *37*-!&;;5' &3' .2*' !4.*(*3.' !4' 4*A' ;!.*(&(5'7(/10-.!/43'&41' .2*' ;/=*' /,'(*&1!4>' >(*&.;5'!4-(*&3*1'&,.*(' .2*' .!6*' /,' 0>03.03

/',&-!;!.&.*' .2*' &77*&(&4-*' /,' &' >(*&.' 406<*(' /,' -/7!*3' &.' .2*' 3&6*' .!6*' .2*'

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&41 2!14* .2* <*;/=*1 /, /3*!1/4 #
(& .A&3 .2!3 (*;&.!/432!7 A2!-2
A&3 (*,*((*1./ !4 .2* /(&-;* >!=*4 ./ .2*
.2*4!&43 A2*4 .2* ,;**. /,]*(0*3 A&3
&77(/&-2!4>.2&. H .2*5 32/0;1 -&;; 07/4
.2*!(<(/.2*("!4";&A I /(*&3&43A*(*1.2*!(

7(&5*(&41 3&-(!,!-* <5 1*3.(/5!4> &7&(.
/, .2* *4*653 ,;**. /4 .2* 7(/6/4./(5/,
7!&3 A2(*07/4 .2*5<0!;. 2!6 &4&;.&(
/4 .2* <&4D3 /, .2* !3303
/4;*/(0!* 8H /04-!;!9 2* /04-!;
!43.!.0.*1 &. .2*43 <5 /;/4 -/43!3.*1 /,
CNN 6*6<*(3 # $NN <*!4> .&D*4
,(/6 *&-2/, .2* ,/0(/4!-.(!<*3 # (
5 ;*!3.2*4*3 .2* 406<*(A&3 !4-(*&3*1./
VNN VN <*!4>.&D*4 ,(/6 *&-2/, .2* .*4
4*A;5 -/43.!.0.*1.(!<*3 &41 -2/3*4 <5 ;/.
A2*(*&3 07./ 2!3 .!6* .2* -/04-!;;/(3 2&1
<**4 *;*-.*1,(/6 .2* 406<*(/, -&41!1&.*3
A2/,,*(1.2*63*;=*3,/(.2* 7/3!.!/4 4
N -.A/4*A (!<*3A*(* &11*1 &41 .2*
406<*(/, .2* -/04-!; &3 &--/(1!4>;5 !4F
-(*&3*1./ ?NN &.A2!-2,!>0(* !. (*6&!4*1
A!.2 3/6* =&(!&.!/43 1/!=4 ./ .2* .!6*3 /,
.2* /6&4*67!(* 0.!4 .2* @41 -*4.0(5
!. &>&!4 ,*;; ./ VNN 4 &4-!*4.!6*3
4/ /4* A&3 *;!>!<;* &3 & -/04-!;;/(A2/1!1
4/. <*;/4> ./ /4* /, .2* .2(** A*&;.2!*3.
-;&33*3 <0.&,.*(.2* .!6* /, (!3.!1*3 .2*
7/3!.!/4 A&3 /7*4 ./ &45 ,(* .2*4!&4 /,
.2!(.5 5*&(3 /,&>* &41 !4 7/33*33!/4 /, ,0;;
-!=!-(!>2.3 4-2//3!4> -/04-!;;/(3 <5;/.
.A/ -&41!1&.*3 A*(* 7(*3*4.*1 ,/(*&-2
=&-&4-5 2* 3&6*70(3/4 6!>2./2/;1 .2*
/,,!-* 3*=*(&; .!6*3 .2/0>2 4/. ,/(.A/
5*&(3 !4 30--*33!/4 =*(5 -/04-!;;/(2&1
./ .&D* & 37*-!&; /&.2 3.(!-.;5 ,/(60;&.*1
/4 *4.*(!4> .2* .2* 6**.!4>3 /,
.2* /04-!;!.3 6*6<*(3A/(* 65(.;*-(/A43
&3 " 1" /, .2*!(/,,!-* 2*5 2&1 .2*
,0(.2*(7(!=!;*>* /, & 7;&-* /, 2/4/0(&.
.2*,*3.!=&;3 &41 A*(* *0-03*1 10(!4>.2*!(
.*(6/, /,,!-*,(/6 6!;!.&(5 3*(=!-* 2*5
&;3/(*-*!=*1 & 7&56*4./,,!=* /<;3 84*&(;5
 ,/(*=*(5 3!..!4> .2*5 &..*41*1 2*!(
7;&-* /, 6**.!4> A&3 -&;;*1 .2* 2
"8H -/04-!;"-2&6<*(!9 2*(* .2*5 6*.
=(5 1&5 *0-*7. /4 70<;!- 2/;!1&53 *&-2
6*6<*(2&=!4> 2!3 406<*(*1 3*&. 2*4
&33*6<;*1 .2* /04-!;A&3 1!=!1*1 !4./.*4
3*-.!/43 /, VN 6*6<*(3*&-2 *&-2(*7(*3*4.3
!4> /4* /, .2* .(!<*3 2*3* 3*-.!/43A*(*
-&;;*1 , : " 8H (*3!1*4.3!9 &41 /,,!-!F
&.*1 !4 30--*33!/4 &3 &((&4>*1 &. .2* <*F
>!44!4> /, *&-2 5*&(, /(RV" ?1&53 /(!4
;*&7"5*&(3 ,/(R" T 2!3 7*(!/1 A&3
-&;;*1 &, : " &41 10(!4> !.3-/.!40F
&4-* .2* : " ,/(.2* .!6* <*!4> 7(*F
3!1*1 /=*(.2* ,0;;3!..!4>3 /, .2* /04-!;
&41 /, .2*70<;!-*&33*6<;5 .//.2*(.!6*3
.2*5 (*6&!4*1 .2* A2/;* 1&5 &. .2*!(/,,!-*
#+(/(P 1/6* I9 4*&(.2* -/04-!;"-2&6F
<*(A2*(* .2*5 030&;5 1!4*1 &. .2* *OF
7*43* /, .2* .&.* 7(*3!1*4.#9
A&3 -2/3*4 *=*(5 1&5<5;/.,(/6 &6/4> .2*

: " ' ./' &-.' &3' -2&!(6 &4' !4' .2*' /04-!;' &41' .2*' 70<;!-' &33* 6<;5' .' /' D**7' .2*' D*53' /,' .2*' ,/(.(*33' &41' .2*' &(-2!=*3' &41' .2*' 3*&;' /,' 3.&.*' (/ 6' UR' ' ' .2*' 7(*3!1*4-5' /,' .2*' 70<;!-' &33* 6<;5' A&3' -/ 6 6!..*1' ./' &' 3B/-!&;' -2&!(6&4' *;*-.*1' ,(/ 6' & 6 /4>' .2*' 4 6*' ' 8H 7(*3!1*4.3I9' A2/' A*(*' -2/3*4' <5' ;/.' <5' .2*' ' /,' .2*' :2' " ',(/ 6' .2*' (* 6&!4!4>' 4!4*' .(!<*3' &.' *&-2' 3!..!4>' /,' .2*' /04-!;

2*',!(3.' 10.5' /,' .2*' /04-!;' A&3' ./' 7(*F 7&(*' &;' .2*' 6*&30.*3' A2!-2' A*(*' ./' -/ 6*' <*,/(*' .2*' 70<;!-' &33* 6<;5' &41' ./' 1(&A' 07' &' 7(*;!6!4&(5' 1*-(**' & -: ' -F -/(1!4>;5' !.' A&3' !.3' <03!4*33' ./' (*-*!=*' .2*' (*7/(.3' /,' .2*' >*4*(&;3' &41' /,' ,/(*!>4' &6F <&33&1/(3' /(*!>4' &,,&!(3' &;A&53' 3./!;' ,!(3.' !4' .2*' /(1*(' /,' 1&!;5' <03!4*33' *3!1*3' .2!3' .2*' /04-!;' *0*(-!3*1' &'>*4*(&;' 307*(!4F .*41*4-*' /=*(' & ' 70<;!-' <03!4*33' &41' %*37*-!&;;5' /=*(' .2*' ,!4&4-!&;' &16!4!3.(&.!/4' ' .' >&=*' .2*' &0.2/(!.5',/(' .2*' ,&(6!4>' /,' .2*' .&0*3' -/4.(&-.3' ,/(' 70<;!-' A/(D3' 3&;*3' /,' -/4,!3-&.*1' 7(/7*(.5' ,/(' &1/7.!4>' 4*A' ;!4*3' /,' *07*41!.0(*' /(' 6/1*3' /,' (&!3!4>' !4-/6*' ,/(' &((*3.!4>' .&0">&.2*(*(3' &41' .&0' ,&(6*(3' !,' .2*5' ,*;;' !4./' &((*&(' 2X .(*&30(*(3' /,' .2*' .*67;*3' *(*' &;3/' (*' 37/43!<;*' ./' !.' 2*'-&=&;(5' &41' .2*' 4&=5' A*(*' 7;&-*1' 041*(' !.3' 37*-!&;' 307*(=!3!/4' &41' !.' 2&1' !4' 7&(.!-0;&(' ./' 3**' .2&.' &' -*(.&!4' 406<*(' /,' 4*A' 32!73' /,' A&(' A&3' <0!;.' *=*(5' 5*&(' .' *O& 6!4*1' .2*' :0&;!F ,!-&.!/43' /,' .2*' 4*A;5' *;*-.*1' &(-2/43' 4' 6&45'-&3*3' !.' &-.*1' &3' &' -/0(.' /,' K03.!-*' &41' 2&1' .2*' 7/A*(' /,' !4,;!-.!4>' ,!4*3' 07' ./' .2*' &6/04.' /,' VNN' ('8E$?' $ 3' C1 9' 0.' 6/(*' 3*(!/03' &3*3' !.' 2&1' ./' 7&33' /4' ./' %.2*' ! './'.2*' 70<;!-' &33* 6<;5' 83 * / ' 2*' &33* 6<;5' A/0;1' 3/6*.!6*3' *4.(03.' .2*' /04-!;' A!.2' &<3/;0.*' 7/A*(' ./' 1*&;' A!.2' *&3*3' A2!-2' 3.(!-.;5' 37*&D!4>' ;&5' /0.3!1*' !.3' K0(!31!-.!/4' 2*' 1*-(**3' 7&33*1' <5' .2*' /04-!;' /4' 6&..*(3' &,,*-.!4>' .2*' 70<;!-' &16!4!3.(&.!/4' ./' <*' <!41F !4>' /4' .2*' *07!(&.!/4' /,' !.3' 5*&(' /,' /,! -*' !4' B&3*' .2*5' A*(*' 4/./' &1/7.*1' <5' !.3' 30--*33/(3' P (!3./.;*' $ " ' ' (" ' C "CTg 2*'=/.!4>' ./!D' 7;&-*' <5' 32/A' /,' 2&413' # (<" B ' =/.!4>' 7*<<;*3' &41' /.2*(' 1*F =!-*3' <*!4>' /4;5' 03B' ,/(' K01!-!&;' 1*-!3!/43' (!=&.*' -!.!Q*43'-/0;1'.(&43&-.' <03!4*33' A!.2' .2*' /04-!;' /4;5' &,.*(' 7(*=!/03' &77;!-&.!/4' ,/(' &4' &01!*4-*' >*4*(&;;5' 6&1*' !4' A(!.!4>' ¢ 2*' /,,!-!&;' -/((*37/41*4-*' A&3' .(&43&-.*1' <5' .2(*' 3*-(*.&(!*3' 8-&;;*1' 1 ' /(A(!.*(3' I9' &77/!4.*1',(/6' &6/4>' .2*' 6*6F <*(3' &41' &33!3.*1' <5' &' 406<*(' /,' 30</(1!F 4&.*',04-.!/4&(!*3

//;*0.1(;14' ' /!(. /A3' 8 (' -/" ' &.' ' A/' D!413' /,' </A' A*(*' D4/A4' ./' &4.!:0!.5' 4*' -/43!3.*1'/,' .2*' .A/' 2/(43' /,' &' D!41' /,' &4.*F ;/7*' /(' &4' &(6' /,' A//1' 32&7*1' ;!D*' .2*6' K/!4*1' ./>*.2*(' <5' &' <(!1>*' A2!-2' 3*(=*1' </.2' &Z' &' 2/;1' ,/(' .2*' 2&41' &41' &3' &' (*3.' ,/(' .2*' &((/A' 2*' 3.(!4>' 6&1*' /,' 7;&!.*1' 2/(3*"2&!(' /(' .A!3.*1' /0">0.' A&3' ,&3.*4*1' ./' *&-2' *41' 8,!>' $9' 2*' /.2*(' -&;;*1' .2*' -5.2!&4' /(' &(.2!&4' </A' A&3' 6&1*' /,' & 7!*-*' /,' *;&3.!-' A//1' .2*' *413' /,' A2!-2' A*(*' .!77*1' A!.2' 6*.&;' &41' <*4.' 3;!>2.;5' 07A&(13' ./' 2/;1' .2*' .(!4>' 8,!>' @9' ;!*' &((/A' 8 D' /(' \ @ ' &.' 1 ' A&3' 6&1*' /,' & 3.*6' /,' (**1' /(

#$$

8@9 (/4& 03*06' 7!'@'

8 9

8C9 !/' ' .&=' O;!!;

R' ; '

;!>2.' A//1' /4*' *41',0(4!32*1' A!.2' &.2(**' -/(4*(*1' 7/!4.' 3/6*.!6*3' 3!67;*' &41' 3/6*F .!6*3' <&(<*1' .2*' /.2*(' *41' A!.2',*&.2*(3' 4/.-2' !4' .2*' 32&,.' 3*(=*1' ./' 7;&,-*' !.' /4' .2*' 3.(!4>' 2*' &((/A3' 8&41' 3/6*.!6*3' .2*' </A9' A*(*' D*7.' !4' &' :0!=*(' & (' 6&1*' /,' ;*&.2*(' A//1' /(' 6*.&;' ,!..*1' A!.2' &' 3037*41*(' &41' 3/6*.!6*3' /7*4' 3/6*.!6*3' 2&=!4>' &' ;!1' 2*' :0!=*(' A&3' A/(4' *!.2*(' /4' .2*' <&-D' &--/(1!4>' ./' .2*' (**D' 6&44*(' /(' !4' (!*4.&.;' ,&32!/4' 4' .2*' ;*,.' 2!7' 2*' (*.&43' 2&1' .2*' (*70.&.!/4' /,' <*!4>' .2*' <*3.' &(-2*(3' &6/4>' .2*' (**D3' 2*5' >*4*(&;;5' 3*(=*1' &6/4>' .2*' ;!>2."&(6*1' &00!;!&(!*3' &3' &' 37*-!&;' -/(73' /!!4.*1

</A6*4' A*(*' *67;/5*1' <5' .2*' &4-!*4.'
.2*4!&43' # ' / !' <0.' !.' A&3' 4/.'
04.!;' &,.*(' .2*' 04!-' A&(3' .2&.' &(-2*(3'
,/(6*1' &'(*>0;&(' 7&(.' /,' .2*' /6&4'&(65'
2*5' A*(*' .2*4',0(4!32*1' <5' .2*' &;;!*3' /('
(&!3*1' <5' (*-(0!.!4>'&41' A*(*' 6/3.;5' .&D*4'
,(/6' (*.*'&41'.2*' &;*&(!-' 3;&413
(&4(/4!&' ' &
(!D(*43' ' / (('
(!3*!3' 2*',&=/0(!.*' 3;&=*' /,' -2!;;*3'
>&6*64/4' .//D' 2*(' ,(/6' 2!6'&41' .203'
D!41;*1' .2*'A(&.2' /,' .2*' 2*(/'./' .2*' (0!4'
/,' .2*' (**D3' # ' : ' F
(!./6&(.!3' 8H'3A**.' 6&!1'!9' ' (*.&4'
>/11*33' 3077/3*1' ./' 1!37*43*' 2&77!4*33'
A2/3*' A/(32!7' *0.*41*1' .2(/0>2/0.' .2*'
!3;&413' &41' &;/4>' .2*' -/&3.3'/,' .2*' *1!.*('
(&4*&4' !D*' (.*6!3' A!.2' A2/6' 32*'
A&3' 3/6*.!6*3' !1*4.!,!*1' 32*' A&3' .2*'
7&.(/4*33'/,' 204.*(3',!32*(6*4' &41'3&!;/(3'
&41' &;3/' &'>/11*33' /,' <!(.2' &41' /,' 2*&;.2'
('372(*'A&3' &.0(*'!4'!.3'>(*&.4*33'&41'
!.3',(**1/6' 3'>/11*33'/,' .2*'3*&'32*'</(*'
.2*'4&6*'/,' !-.544&' .2*'3077/3*1'1*(!=&F
.!/4'/,' A2!-2',(/6'.2*' ("'8H'&
4*.'I9' A&3' *07;&!4*1' <5' .2*' ,/;;/A!4>'
;*>*41' 2*'A&3' .2*' 1&0>2.*(' /,' &' 204F
.(*33'60-2'<*;/=*1'<5'L*03' &41' (.*6!3'
!413' ;/=*1'2*(' &41',/;;/A*1'2*(',/('4!4*'
6/4.23' /=*(' =&;;*5'&41' 6/04.&!4'.2(/0>2'
,/(*3.' &41' 3A&67'.!;;' 2*' 4*&(;5'/=*(./(D'
2*('A2*4'32*' ;*&7*1',(/6' &' 2!>2'(/-D'!4./'
.2*' 3*&' 2*' A&3' 3&=*1' <5',&;;!4>'!4./'
3/6*'4*.3'&41' (.*6!3'6&1*'2*(' &'>/11*33'
2*' A/0;1'3**6'/(!>!4&;;5'./' 2&=*' <**4' &'
>/11*33'/,' .2*' 6//4'2*(',;!>2.'356</;!Q!4>'
.2*' (*=/;0.!/4'/,' .2*' 6//4'(/041'.2*'*&(.2'
&41'2*(';*&7'!4./' .2*'3*&'!.3'1!3&77*&(&4-*
(!Q/' ' >/11*33';/-&;!Q*1'!4' *;/3'./'
A2/6' A/6*4'!4' 7&(.!-0;&('7&!1' A/(32!7'
&3'7(/.*-.(*33'/,'6&(!4*(3' 2*5'3*.'<*,/(*'
2*(' *&.&<;*3' /,' =&(!/03' D!413'8,!32' <*!4>'
*0-;01*1'9!4';!..;*' </&.3' 2*'&;3/'7(*3!1*1'
/=*('&4' /(&-;*'.2*' &43A*(3' /,' A2!-2'A*(*'
>!=*4'!4' 1(*&63'./'7*/7;*' A2/' -/430;.*1'!.'
/4' 6&..*(3' (*;&.!4>' ./' ,!32*(5'&41' 4&=!>&F
.!/4
(16;03' ' *)
(/4.*3' '" (
(0.03'# '. " ' 2*'A*;;"D4/A4'
,(!*41' /,' !-*(/'&41' 60(1*('*(' /,' &*3&('
*' A&3'</(4'!4'RV' '&41' 1!*1'<5'2!3'/A4'
2&41'&,.*('.2*'<&..;*' /,' 2!;!77!' -'C@
3'&4'/(&./('&41'&'A(!.*(' /4' 72!;/3/725'
2*'2*;1'&'7(/6!4*4.'7/3!.!/4'&6/4>'2!3'-/4F
.*67/(&(!*3' A/'</!D3'/,' -/((*37/41*4-*'
<*.A**4' (0.03'&41' !-*(/'2&=*'-/6*'1/A4'
./'03'.2*'&0.2*4.!-!.5'/,'A2!-2'!3'1!370.*1'
2*(*' !3'&;3/'&'-/;;*-.!/4' /,' 3*=*4.5';*..*(3
!4' (**D'70(7/(.!4>' '(*7(*3*6'-/4A3KB4"'
1*4-*'<*.A**4' (0.03'&41'.2*' (**D'-!.!*3

6 ' *&1'/,' (0.6#' (' 7] ' &7'/,' !<*(.5'<*.A**4'.A/'
A0 ?- 15A.#' k ' *(0 ' 1&>>*(3'E!ta'&
! '?/4*'/,'2!,;'7&(.!3&439

' ' ' ^ ' 'CC"C@'

8 /<*4' o ' /43'7<'OO!=' .6!&' 9

/,' 3!&' !4/(" <0.'.2!3' !3'4/' 6/(*'.2&4'.2*'
7&.-2A/(D'/,' &'(2*./(!-!&4
0&' 4&>/(' ')
(
J-!4&' 87(/7*(;5' H'&
-/A"2/(4'I9'A&3'.2*'4&6*'
/,' &' .!4' .(067*.' 32&7*1'
;!D*' &'3*(7*4.'&41' <;/A4'
<5' &' .(067*.*(' -&;;*1'
" ' 2*' " '
>&=*' .2*' 3!>4&;' -&;;*1'
" :' &41' &;3/' .2*'
-&;;' ,/(' (*;!*=!4>' >0&(1'
&.'4!>2.
E' ') (
0-/;!-' 8/(' (/6'&'7&&(&;'
/.(5' (/6' =(5' &4F 7&!4.!4>!/,';>;&1!&F
-!*4.' .!6B' !.' A&3' .2*' ./(3'8 *,;'&41'
2&<!./,' .2*' /(!&4'32*7F &415',H " " :'
2*(13'!4' !-!;5'./'7(&-.!3*' 7!'UV9
&' 4&.!/4&;' 3.5;*' /,' 3/4>' .2*' !4=*4./(' /,'
A2!-2'A&3'3077/3*1'./'<*' &B4!3'.2*'2*(/'
/,'32*72*(13'# ' 2*'30<K*-.'/,'
.2*!('3/4>'A&3'7&(.;5'.2*',&.*'/,' .2!3'2*(/'
7&(.;5'.2*'3!67;*'*07*(!*4-*3'/,'32*72*(13'
;!,*'*37*-!&;;5'.2*!(';/=*3' 2*(*'A&3'&'
>//1'1*&;' /,' .2*' 6!6!-' *;*6*4.'!4' .2*3*'
7/*63'.2*' 32*72*(13'-/4.*41!4>'A!.2'*&-2'
/.2*('!4'&;.*(4&.*'=*(3*3'7&(.!-0;&(;5'&.' .2*'
./A4'&41'-/04.(5',*3.!=&;3'2*;1'!4' 2/4/0('
/,' (.*6!3' &3./(&;' 7/*63' (*;&.!4>' .2*'
3./(5'/,' &724!3';/=*' &41' /,' 2!3' .(&>!-'
*41'2&1'<**4'A(!..*4'<5'.2*' !-!;!&4'7/*.'
.*3!-21(03'8&</0.' ?NN' 9' 0.' !.' A&3'
2*/-(!.03'/,' 5(&-03*'8&</0.'@UN' &9'A2/'
1*=*;/7*1'7&3./(&;' 7/*.(5'!4./'3/6*.2!4>'
;!D*' &4' *7!-' 3.5;*' /,.*4' A!.2' &' 3.(/4>'
1(&6&.!-' .!4>*' 2!3' A&3'!4' .2*' ;*OF
&41(!&4'7*(!/1'A2*4'&3'!4'&;' /=*("-!=!;!Q*1'
&>*3'6*4',/041'7;*&30(*'&41' (*;!*,' !4'.2*'
-/4.(&3.'&,,/(1*1'<5'.2*'3!67;*'A&53'/,'
-/04.(5';!,*' 2*/-(!.03'3D*.-2*3'/,'(0(&;'
;!,*'&41'!41**1'/,' .2*' A&53'/,' .2*' ;/A*('
/(1*(3'!4'>*4*(&;'&(*'.(0*'./'4&.0(*'&41'*OF
:0!3!.*;5',!4!32*1' *' -&;;*1'.2*'6' :
/(';!..;*' 7!-.0(*3' 2*/-(!.03' A&3' 430("

7&33*1 !4 2!3 /A4 3.5;* A2!-2 A&3 -0;.!=&.*1 &,.*(2!6 <5 !"4 &41 /3-203

2 7&3./(&; 3.5;* A&3 !4.(/10-*1 !4./ &.!4 7/*.(5 <5 *(>!; A2/ A2!;* -;/3*;5 !6!.&.!4> 2*/-(!.03 2&1 .2 .&-. ./ 7*(F -*!=* .2&. .2 3!67;* 3D*.-2*3 /, &7-!*4. (0(&; ;!,* !4 !-!;5 >!=*4 <5 2!3 6&3.*(A/0;1 4/. <* 30,,!-!*4. ./ 3&.!3,5 .2 .&3.* /, 2!3 -/04.(56*4 . 41*(.2 6&3D /, 32*72*(13 .2*(*,/(* 2 !4.(/10-*1 -/4F .*67/(&(5 -2&(&-.*(3 .203 A!44!4> &..*4F .!/4 <5 .2 *07(*33!/4 /, 2!3 7*(3/4&; ,**;F !4>3 &41 <5 -/=*(.&;;03!/43 ./ *=*4.3 /, .2 1&5 A/7/*63 ,&;3*;5 &..(!<0.*1 ./ 2!6 .2 &) #8H &;&1I9 &41 8H /3F .*33I9 &(* (*&; !15;;3 .(0 &41 4&.0(&; 3.01!*3 ,(/6 ;/A ;!,* *(>!; 3 &;;*>/(!-&; 3.5;* A&3 (*=!=*1 !4 ;&.*(.!6*3 <5 &;" 70(4!03 !4 .2 &>* /, *(/ &41 *6*3!&403 &. .2 *41 /, .2 (1 -*4.0(5

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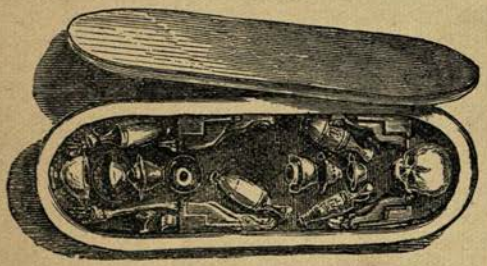
0;;& (/041 (2*&("32&7*1 </0 -/4.&!4!4> &4 &60;*. /(4 (/041 .2 4*-D <5 ,(**"</(4 /6&4 -2!;1(*4 2 ,&32!/4 A&3 </(((/A*1 ,(/6 .2 .(0(!&43 /A*&(&; >/;1*4 ! b=&3 /(!>!4&;;5 & 7(!=!;*>* /, .2 7&.(!-!&43 A2!-2 A&3 !4 ;&.*(.!6*3 *0.*41*1 ./ .2 &41 >*4*(&;;5 ./ (!-2 &41 1!3.!4>0!32*1 ,&6!;!*3 *&.2*(! " A*(* A/(4 <5 .2 -2!;1(*4 /, 7/!(,&6!;!*3 &41 /, ,(**16*4 /53 -*& *1 ./ A*&(.2 ! A2*4 .2*5 &3306*1 .2 ; 1 &41 204> 07 /=*(.2 2*&(.2 !(;3 6/3.7(/<&<;5 ;*,. !. /,, /4 6&((!&>* . A&3 3/6*.!6*3 70. /4 <5 &10;.3 &3 &7(/F .*-.!/4 &>&!43. .2 *=!; *5 /4 37*-!&; /-F -&3!/43 &3 ,/(!43.&4-* /4 .2&. /, &.(!0672 . > "A (& ,!7214;& 0(!&; 8$9 4 , 2 (**D3 (*>&(1*1 .2 <0(!&; /, .2 1*&1 &3 /4 /, .2 6/3.3&-(1 10.!*3 .3 4*>;*-. !4=/;=*1 &4 /,,*4-* &>&!43. .2 1*&1 ,/(&--/(1!4> ./ .2 7/70;&(<*;!*, .2 3/0; /<.&!4*1 4/ (*3. !4 .2 (*&;63 /, .2 1*&1 3/ ;/4> &3 .2 </15 (*6&!4*1 04<0(!*1 .!4=/;=*1 ,0(.2*(&4 /,,*4-* &>&!43. .2 >/13 </.2 /, .2 077*(&41 .2 ;/A*(A/(;1 2 04<0(!*1 -/(73 A&3 &4 /,,*4-* ./ .2 *5*3 /, .2 ,/(6*(A2!;* .2 ;&..*(A*(* 1*7(!=*1 /, .2*!(10* 45 /4 ,!41!4> &4 04<0(!*1 -/(73 A&3 *07*-.*1 &.;*&3. ./ .2(/A &2&460; /, 103./=*(!. ,&> *4*(&;4*>;*-.*1 ./ 7(/=!1 ,/(.2 <0(!&; /, .2 3;&!4 !4 A&(2 A&3 1**6*1 >0!;.5 /, &-&7!.&; /,!*4-* 0(!&; /, .2 1*&1 A&3 4/.(*,03*1 *=*4 ./ .2 *4*65 A2*.2*((**D /(<&(<&(!&4 .A&3 &=!/;&.!/4 /, .2 *;&3 /, A&(./(*,03* ./ .2 -/4:0*(*1 .2 .(0-* 4*-*33&(5 ,/(.2!3 70(7/3* &41 !, .2 -/4:0*(*1 A*(* 04&<;* ./ ,0;,!;5 .2 10.5 .2 (*37/43!<!;!.5 ,*;; 07/4 .2 -/4F :0*(/(3 2*(* A*(* -*(.&!4 -!(-063.&4-*3 041*(A2!-2 &--/(1!4> ./ .2*4!&4 ;&A -2!;1(*4 10(!4> .2*;!,*.!6 * /, .2*!(,&.2*(3 A*(* 2*;1 ,(** ,(/6 &;; /<;!>&.!/43 ./ .2*6 <0. .2* /<;!>&.!/4 ./ >!=* .2*6 <0(!&; &,.*(1*&.2 A&3 4*=*(-&4-*;;*1

2 03&>*3 /, .2 .2*4!&43 &41 7(/<&F <;5 /, .2 /.2*((**D3 A*(* &3 ,/;;/A3 2 *5*3 /, .2 1*&1 2&=!4> <**4 -;/3*1 &4 &3 70. !4 .2 6/0.2 &3 7&33&>*" 6/4*5 ,/(2&(4 2 </15 A&3 .2*4 A&32*1 &41 &4/!4.*1 <5 .2 A/6*4 /, .2 ,&6!;5 A2/ 7(/-**1*1 ./ &1/(4 !. A!.2 ,!;;*.3 &41 >&(;&413 8-/66/4;5 /, !=59 ./ -;/.2 !. !4 A2!.*>&(66.3 &41 ;&5 (. /0. /4 &-/0-2 !4 .2 2&;; A!.2 !.3 ,&-* .0(4*1 ./ .2 1//(2 D!43,/;D &41 ,(!*413 .//1 <5 6/0(4!4>" <0. .2 ;&A3 /, /;/4 ,/(<&1* &;*0&>>*(&.*1 *07(*33!/43 /, >(!*, !(*1 A/6*4 A*(* 3/6*.!6*3 !4.(/10-*1 3!4>!4> 1!(>*3 ./ .2 &--/67&4!6*4. /, .2 ,;0.* *&(.2 -/0-2 A*(* 7;&-*1 7&!4.*1 *&(.2*4F A&(* =&3*3 -/4.&!4!4> .2 ;!<&.!/43 ./ <* &,.*(A&(13 /,,*(*1 *,/(* .2 1//(A&3 & =*33*;* /, A&.*(!4.*41*1 ,/(.2 70(!,!-&F .!/4 /, &;; A2/ A*4. /0. 2!3 A&.*(6!>2. 4/. <* </0>2. ,(/6 &4/.2*(2/03 !4 A2!-2 & 1*&1 </15;&5 2 -/(73 A&3 ;&!1 /0. B .2 1&5 ,/;;/A!4> .2 1*&.2 &41 /4 .2 4*0.1&5 <*,/(* 304(!3 8;* .2 304 32/0;1 <* 7/;;0.*1 <5 .2 3!>2.9 A&3 -&((!*1 /0. / .2 7;&-* /, <0(!&; &..*41*1 <5 D!436*4 &41 ,(!*4-. A2/ 3/6*.!6*3 &-.*1 &3 <*&(*(3 2!3 /,,!-* 2/A*=*(A&3 030&;;5 7*(,/(6*1 <5 ,(**16*4 /(2!(*1 &33!3.&4.3 !4 .2 -&3 /, 6*4 /, 6&(D !. A/0;1 <* 041*(.&D*4 <5 5/04> .2*4!&4 -!.!Q*43 2 7(/-*33!/4 A&3 2*&1*1 <5 6*4 !4>!4> 3/4>3 /, 6/0(4!4> /(A/6*4 7;&5!4> .2 ;.0.* .2*4 -&6* .2 6&;* 6/0(4*(3 !4 >&(6*4.3 /, <;&-D /(>(*5 &41 A!.2 2&!(-0. 32/(.* &41 .2*3* A*(* ,/;;/A*1 <5 .2* <!*(,/;F ;/A*1 & .(&!4 /, A/6*4 !4-;01!4> &;; A2/ A*(* (*;&.*1 ./ .2 1*&1 &3 ,&(&3 ./ .2 ,!.2 1*>(** /.2*(A/6*4 6!>2.&..*41 <0. .2/3* A2/ A*(* 6/(* .2&4 3!0.5 5*&(3 /, &>*

4 .2 2*(/!-&>* .2 </1!*3 &(* &;A&53 <0(4. <0(!&; <*!4> 04D4/A4" <0. !4 ;&.*(.!6*3 <0(!&; &41 <0(4!4> &(* /041 *0!3.!4> 3!1* <5 3!1* <0(!&; <*!4> 7(*,*4"*1 <5 .2* 7//(/4 .2 >(/041 /, *07*43* 4 -&3* /, <0(!&; .2 </15 A&3 7;&-*1 !4 & -/,,!4 /, A//1 -;&5 /(3./4* /(!4 & -2&6<*(!4 &

wall, or in a grave hollowed out in a rock. If burning was resorted to, the corpse was laid on a pyre, which, in the case of rich families, was sometimes very large, splendid and costly. It was kindled by the nearest relative; the mourners threw into the flame locks of hair, and objects of all kinds in which the dead person had taken pleasure during his life. When the fire was extinguished, the relations collected the ashes and put them in an urn, which was set up in a building constructed on a scale large enough for whole families or clans. So, too, in case of burial, the coffins which belonged to one family or clan were laid together in a common tomb. Near the urns and coffins were placed a variety of vessels and other objects which had been the property of the dead. (Comp. fig. 1.)

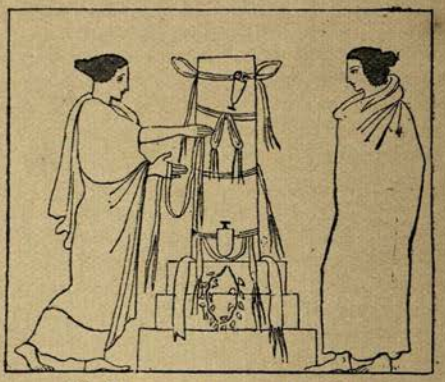
The funeral was succeeded by a meal partaken of by the mourners in the house of mourning. The virtues of the dead were



(1) *A CHILD'S COFFIN, ATTICA.
(Stackelberg, *Gräber der Hellenen*, Taf. vii.)

spoken of, and his faults passed over, to speak evil of the dead being regarded as an impiety. Then came the purification of the house. On the third, ninth, and thirtieth day after the funeral, libations of honey, wine, oil, and milk or water, with other offerings, were brought to the tomb. On the ninth day, in particular, peculiar preparations of food were added. The outward signs of mourning were laid aside at Athens on the thirtieth, at Sparta as early as the twelfth, day after the funeral. The kinsfolk visited the graves at certain seasons of the year, adorned them with garlands and fillets, and brought offerings to them. This was done more especially on the anniversaries of births and deaths, and at the general festival of the dead (*Nĕkўsia*) in September. (Comp. fig. 2.)

After the time of Solon, a public burial was sometimes given at Athens to men of great mark. In time of war, too, the bones of all the citizens who had fallen in the campaigns of the year were sometimes buried together at the public expense in the outer Cĕrămīcus, the most beautiful suburb of the city. On these occasions a funeral



(2) * DECORATED GRAVE COLUMN.
From an Athenian vase (Stackelberg, l.c., Taf. xlv.)

oration was delivered by a speaker of mark, chosen by the government. In later times a memorial festival was observed, even in time of peace, in honour of the dead thus publicly buried. A special service was held annually at Mărăthōn in memory of the heroes who had fallen there, and been buried on the spot in recognition of their valour. (Comp. fig. 3.)

The ashes of persons who had died in a foreign country were, if possible, brought home and laid in a tomb. There were cases in which this was impossible, or in which the body could not be removed—if, for instance, the deceased had been lost at sea. Then a *kĕnotăphĭon*, or empty tomb, would be erected to his memory. It was only to very heinous offenders that a tomb in their own country was refused. If a man's guilt was proved after his death, his remains were disinterred and sent across the frontier.

(3) * THE MOUND AT MARATHON.
(Dodwell's *Travels in Greece*, ii 160.)

As a rule—though there were exceptions, as at Sparta—burial places were situated outside the city, and in the neighbourhood of the great roads. This was also the favourite place for private tombs standing

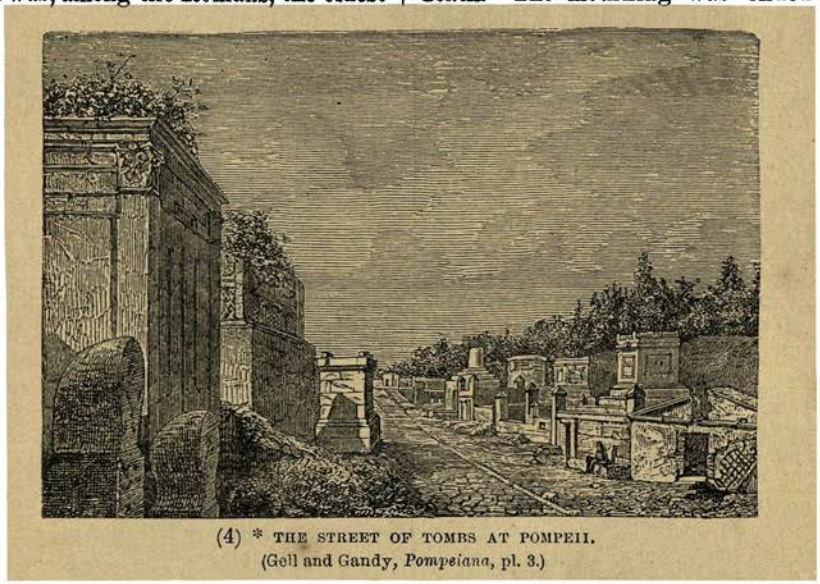
/4 .2/!(/A4 >(/. =; 7&(. ,(/ 6 .2* -/6B 6/4 -*6*.*(!*3 2* </15 A&3 >*4*(&;;5 <0(!*1 A!.2 .2* ,**. .0(4*1 ./A&(13 .2* (/&1 /406*4.3.//D .2* ,/(6 /,6/0413 7!;&3.*(3 -/;0643 &41 .;&. >(&=*"3./4*3 * /,.*4 ,!41 <0!;1!4>3 !4 .2* 3.5;* /, .*67;*3 A!.2 =*(5 -/3.;5 &1/(46*4.3 3-0;7.0(*3 &41 !43-(!7.!/43 !4 =*(3* &41 7(/3* 2*3* !43-(!7.!/43 /,.*4 >!=* 6/(* .2&4 .2* 4&6* /, .4* 1*-*&3*1 &41 -/4F .&!4 4/.!-*3 /, 2!3 ;!,* 3/6*.!6*3 A!.2 7(/=*(<3 3/6*.!6*3 A!.2 -0(3*3 1!(*-.*1 &>&!43. &45 /4* =!/;&.!4> .2* . 6< &41 1!3.0(<!4> .2* (*3. /, !.3 /--07&4.3 2* =!/;&.!/4 /, & ./6< A2!-2 A&3 (*>&(1*1 A!.2 (*=*(*4-* &3 & -/43*-(&.*1 37/. A&3 & 3*(!/03 /,,*4-* 4* /, .2* 6/3. &>>(&B =&.*1 ,/(63 /, !. A&3 .2* !4.(03!/4 !4./ .2* ,&6!;5 3*70;-2(* /, & </15 A2!-2 2&1 4/ (!>2. ./ <* .2*(*

8@9 7 " 2* A/(32!7 /, .2* 1*&1 * 6&;* 3!4B(3 -2&4.!4> .2* 7(&!3*3 /, .2* 1*&1 # &/ 9 2*4 -&6* & -/67&45 /, 1&4-*(3 &41 &-./(3 ./ &6 3* .2* 37*-.&F ./(3 A!.2 .2*!(&4.!-3 077/3!4> .2 ,&6!,5 A&3 (" !4 ./2*(A/(13 2&1 !. 2&1 /4* /(6/(* 6*6<*(3 A2/ 2&1 2*;1 -06;* /,,!-*3 &41 .2* -/43*:0*4. (!>2. /, 3*..!4>07 6&3D*1 3.&.0*3 /, !.3 ,/(*J .2*(& !4 !.3 4/03* .2* -*4.(&; 7/!4. /, .2* -*(*F 6/45 A&3 .2* 7(/-*33!/4 /, &4-*3./(3 2!3 -/43!3.*1 /, 7*(3/43 1(*33*1 ./ (*7(*3*4. .2* &4-*3./(3 !4 .2*!(A&0 6&3D3 .2*!(/,,!-!&; (/<*3 &41 /.2*(" 1" 2* !4F 1!(*-.;!4*3 /, (*;&.!/432!7 A*(* (*7(*3*4.*1 &3 A*;; &3 .2* 1!(*-. &-2 ,!>0(* A&3 6/04.*1 /4 &2!>2 -&((!&>* &41 7(*-*1*1 <5 ;!-./(3 2* .(&!4 !4601*1 6*6/(!&;3 /, .2* 1**13 1/4* <5 .2* 1*-*&3*1 ./(-2 <*&(*(3 &41 ;!-./(3 A!.2 ;/A*(*1

2* </15 ,/;;/A*1 04-/=*(*1 /4 &4 *:*F =&.*1-/4-2 3/6*.!6*3 !4 &-/,,!4 !43!1* .2* <!*(A//1*4 ,!>0(* -;/.2*1 &41 A*&(F .2* A&0 6&3D (*7(*3*4.!4> .2* 1*&1 3&.07(!>2. <*3!1* !. !4 .2* &..!.01** /, ;!,* 2* <*&(*(3 A*(* 030&;;5 .2* 3/43 (*;&.!/43 &41 ,(!*413 /, .2* 1*-*&3*1 !4 .2* -&3* /, *67*(/(3 .2*5 A*(* 3*4&./(3 &41 2!>2 /,,!-!&;3 *2!41 .2* <!*(-&6* .2* /.2*(6/0(4*(3 6*4 &41 A/6*4 .2* ,(**16*4 !4 6/0(4!4> &41 A!.2/0. &45 /(4&6*4.3 (F (!=*1 &. .2* /(06 .2* <!*(A&3 3*. 1/A4 <*,/(* .2* (/3.(06 2* (*7(*3*4.&.!=*3 /, .2* &4-*3./(3 &; 1/A4 /4 A//1*4 -2&!(3 .2* (*3. &((&4>*1 .2*63*;=*3 !4 & -!(-;* (/041 A2!;* &3/4 /(D!436&4 &3-*41*1 .2* (/3.(06 &41 1*;!=*(*1 & 7&4*>5(!- 7/4 .2* 1*&1 , .2* ,04*(&; A&3 & 70<;!- /4* .2* /(1+(A&3 &77/!4.*1 <5 .2* 3*4&.* 4 .2* -&3* /, 1*-*&3*1 ;&1!*3 30-2 37**-2*3 A*(*

not usual, until the last century of the Republic. After the speech, the procession moved on in the same order to the place of burial, which, according to the law of the Twelve Tables, must be situated outside the city. No one could be buried within the city but men of illustrious merit, as, for instance, generals who had won a triumph, and Vestal Virgins. By a special resolution of the popular assembly, these persons were allowed the honour of burial in the Forum. The tombs were in some cases situated on family estates, but the greater number formed a line extending from the gates of the city to some distance along the great roads, and especially the *Via Appia*. (Comp. fig. 4.)

Burial was, among the Romans, the oldest form of disposing of the corpse. In certain families (*e.g.* the *gens Cornēlia*), it long continued the exclusive custom. Infant children, and poor people in general, were always buried. Even when the body was burnt, an old custom prescribed that a limb should be cut off and buried, otherwise the family was not regarded as having discharged its obligations. The body was laid in its tomb in full dress, and placed in a special sarcophagus. When the body was to be burnt, a pyre was erected on a specified place near the grave. The pyre was sometimes made in the form of an altar, and adorned in the costliest manner. The couch and the body were laid upon it, and with them anything which the deceased person had used or been fond of, sometimes one of his favourite animals. The followers threw in a variety of gifts as a last remembrance. The pyre was then kindled by the nearest kinsman and friends, who performed the office with averted faces. The ashes were extinguished with water or wine, and the procession, after saying a last farewell, returned home, while the nearest of kin collected the ashes in a cloth and buried the severed limb. After some days, the dry ashes were put by the nearest relations into an urn, which was deposited in deep silence in the sepulchral chamber, which they entered ungirt and bare-footed. After the burial or burning there was a funeral feast at the tomb. A sacrifice to the Lărēs purified the family and the house from the taint entailed by death. The mourning was ended on the ninth day after the burial by a sacrifice offered to the *Mānēs* of the dead, and a meal of eggs, lentils and salt, at which the mourning attire was laid aside. It was on this day that the games held in honour of the dead generally took place. (*See* MANES.)



(4) * THE STREET OF TOMBS AT POMPEII.
(Gell and Gandy, *Pompeiana*, pl. 3.)

Everything necessary for the funeral was provided by contract by the *lĭbĭtīnārii* or officials of the temple of Lībĭtīna, at which a notification was made of all cases of death (*see* LIBITINA). There were public burial-places, but only for slaves and those who were too poor to buy burial-places for themselves. The bodies were thrown promiscuously into large common graves, called *putĭcŭli*, or wells, on account of their depth. There was a burial place of this sort on the Esquiline, where the bodies of criminals

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&'7;&-*'!4'A2!-2'-/0;1'<*'70(-2&3*1'<5'7*(F
3/43' /,' 3-&4.5' 6*&43' 83*"' / !4 9'
2*'>(&=*3'/,'!41!=!10&;3'&41',&6!;!*3'A*(*'
30<.*((&4*&4'-2&6<*(3'/(' <0!;1!4>3'!4'.2*'
3.5;*' /,' 2/03*3' (**16*7'&41'7(/<&<;5'
&;3/'-;!*4.3'&41',(!*413'A*(*' /,.*4'<0(!*1'
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<5'.2*' /6&43'&41' (**D3'&;!D*'&3'.2*'
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-03./6'.2&.'A*'/A*'.2*'7(*3*(=&.!/4'/,'3/'
d6&45'(*6&!43'/,'.2!3'3/(.' 2*'6/406*4.'
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2/;1!4>'.2*',04*(&;',*&3.'&41',/(' 2/03!4>'
.2*',(**16*4'A2/'2&1'.2*'1&(*'/,'.2*'37/.'
43-(!7.!/43'!4'=*(3*'&41'7(/3*'>!=!4>'!4F
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,/041'.2*(*
03!(!3' 2*'3/4'/,' /3*!1/4'&41'&'
1&0>2.*(' /,' 7 7203' 2*' (**D'65.2/F
;/>5'6&1*'2!6'D!4>'/,' >57.' 2*';&41'
A&3'&,,;!-.*1',/(' 4!4*'5*&(3'A!.2'&3*(!*3'/,'
<&1'2&(=*3.3'&41'&7(/72*.'4&6*1'2(&3!03'
/,' 57(03'&1=!3*1' 03!(!3'./'3&-(!,!-*'&
3.(&4>*(' *=*!5'5*&(' ./' L*03' 2*' D!4>
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3;*A' 03!(!3'A!.2'2!3'3/43'&41'2!3'A2/;*'
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2*33&;5' A2!;*' .2*5'A*(*' -*;*;6&.!4>'&'
3&-(!,!-*'./' !/45303' 4*'/,'.2*3*' /(/4!3'
A2/6'2*'2&1',/(-*1'./' <*' 2!3'A!,*'7(&5*1'
./' !/45303',/(*=*4>*&4-*' 2*'> 1'1(/=*'
2!6'6&1K'&41'2*'.2(*A'2!63*;,'!4./'&'A*;;
8@9' 4'.2*4!&4'2*(/'3/4'/,'.2*' .2*4!&4'
&41;/4' &41' L*00!77*' '.!;;*(' /,' .2*'
3/!;' &41'&' 4*&.2*(1'<*' A&3'&'7(!*3.'/,'
.2*4*' .2*' B11*33',/,' .2*' 3.(/4>2/;1'&41'
/,' /3*!1/4' (*-2.2*03'&41'.203'&4-*3./(
/,' .2*' 7(!*3.;5'-&3.*' /,' .2*' 0. &*' &41'
.>S<0.&13*' *' 32&(*1'&4'&;.&(' !4' .2*'
(*-2.2*06'A!.2' /3*!1/4'&41' *72&*3.03'
2*';&.*('3./(5'(*7(*3*4.*1'2!6'&3'.2*'3/4'/,'
*; 4'&41'L*00!77*'&41'&3'.&D!4>'7&(.'!4'
.2*'*07*1!.!/4'/,'.2*' (>/4&0.3
8 9' '!-!;!&4'2*(/'!1*4.!,!*1'!4' ,&<;*'
A!.2'.2*' .2*4!&4' 0.*3' 0.*3'.2*' (>/F
4&0.'A&3'*4.!-*1'<5'.2*'3/4>'/,'.2*' !(*43'
&41';*&7*1'!4./' .2*' 3*&'<0.'A&3'(*3-0*1'
&41'<(/0>2.'./' !;5<&*06'!4' !6;5'<5'
72(/1!.*'<5'A2/6'2*'<*-&6*' .2*',&.2*('
/,' (50

J<!(!'8 (' 2*'4&6*'/,'-*(F
.&!4'1*!.!*3'3077/3*1'./'(*7(*3*4.'.2*'<*4*F
,!-*4.'7/A*(3'/,' &.0(*'&41'A/(32!77*1'!4'
^3*(.&!4'7&(.3'/,' (**-*'!4' /*/.!&' ,/(' !4F
3.&4-*'&41'!4'.2*'!3;&413'/,' 6</3' *64/3'
&41' &6/.2(&-*' /.2!4>'-*(.&!4'!3'D4/A4'
G/,'.2*!('(*&;'-2&(&-.*('/(' .2*',/(63'/,'.2*!('
A/(32!7' 2*'4&6*'!3'7*(2&73' 2.*4!-!&4'
&41'!,'3/' 6*&43'H'.2*'>(*&.'/(' 6!>2.5'
"/4*3I' .'A/0;1'3**6'.2&.'.2*5'A*(*'
/(!>!4&;;5'!6&>!4*1'&3'7/33*33!4>'3!6!;&('
7/A*(3'./'.2/3*'/,'.2*' *;-2;4 3' 0(*. 3'
G /(5<&4. 3'&41' &-.5;!"&41'.2&.'.2*5'
A*(*'-/4,03*1'3/6*.!6*3'A!.2'.2*' !/3-0(!'
3/6*.!6*3'A!.2' *6 .*(' &41' *(6 3'&41'
3/6*.!6*3' 8*37*-!&;;5'!4' *64/39' A!.2'
*72.*3.03' 2*!(' A/(32!7'A&3'3*-(*.'
2*'653.*(!*3'/,'.2*' &<!(!'/,' &6/.2(&-*'
Y.//1'!4'2!>2'-/43!1*(&.!/4'10(!4>'.2*' &-*F
1/4!&4'&41' /6&4'7*(!/13'<*!4>'(.B&(1*1'
!41**1'&3'!4,*(!/(' /4;5'./' .2*' ;*03!4!&4'
653.*(!*3'!4'3&4-.!.5' 2*'!4!.!&.*1'A*(*'
3077/3*1'./'2&=*'3*-0(*1'37*-!&;'7(/.*-.!/4'
&>&!43.'6!32&73'*37*-!&;;5'<5'3*&
'8&',!>0(*'!4' .&;!&4'65.2/;/>59' '
,!(*"37!..!4>'>!&4.'.2*'3/4'/,' 0;-&4'A2/'
;!=*1'4*&(' .2*'7;&-*'A2*(*' /6*' &3'&,.*(F
A&(13'<0!;.' 2*4' *(-!!;*3'-&6*'!4./'.2*'
4*!>2</0(2//1'A!.2'.2*' -&..;*' /,' *(5/4'
&-03'3./;*'3/6*'/,'.2*6'A2!;*'.2*'2*(/'A&3'
3;**7!4>' *'1(&>>*1'.2*6'<&-DA&(13'!4./'
2!3'-&=*' 041*(' &'370(' /,' .2*' =*4.!4*'3/'
.2&.'.2*!(',//.3.*73'B=*'4/'-;0*'./'.2*'1!(*-F
.!/4'!4'A2!-2'.2*5'2&1'>/4*' *'.2*4'-;/3*1'
.2*'*4.(&4-*'./'.2*'-&=*' A!.2'&(/-D'A2!-2'
.*4'7&!(3'/,' /0*4'A*(*' 04&<;*' ./' 6/=*'
0.'.2*';/A!4>'/,'.2*'-&..;*'>0!1*1'.2*'2*(/'
!4'2!3'3*&(-2'./'.2*' (!>2.'.(&-D' *' ./(*

/7*4 .2* ,&=* &41 &,.*(&,*&(,0;3.(0>>;* 3;*A &-03 A!.2 2!3 -;02 7/4 .2!3 2* <0!;.&4 &;.&(/4 .2* 37/. ./ 07!.*(041*(.2* .!.;* / , '" " '&!\ ('1!3-/=*(*(!9 &41 3&-(!,!-*1 /4* / ,.2* -&..;* 07/4!. 2* !42&<!.&4.3 7&!1 2!6 *=*(5 2/4/0(,/(,(**F !4> .2*6 / , .2* 6/43.*(&41 =&41*(A2/ A&3 !43.(0-.*1 <5 2!3 6/.2*(&(6*4.!3 !4 .2* ;/(* / , 7(/72*-5 3&;0.*1 2!6 &3 &>/1 *(-0;*3 !3 .2*4 3&!1 ./ 2&=* *3.&<;!32*1 <!3 /A4 (*;!>!/03 3*(=!-* &41 ./ 2&=* !4F 3.(0-.*1 .A/ 4/<;* ,&6!;!*3 .2* , &41 .2* , " ' !4 .2* 03&>*3 ./ <* /<3*(=*1 &. .2* 3&-(!,!-* 2!3 3&-(!,!-* A&3 ./ <* /,,*(*1 /4 .2* - A2!-2 2* 2!6F 3*;,2&1 <0!;. /4 .2* -&..;* 6&(D*. # D A2*(* .2* -&..;* 2&1 <**4 7&3F .0(*1

&1603 8 (8$9 /4 / , >*4/(D!4> / , 2/*4!-!& &41 / , *; 72&33& !3 3!3.*(0(/7& <*!4> -&((!*1 / ,, <5 L*03 &1603 A!.2 2!3 <(/.2*(3 72/*4!0 &41 !;!0 A&3 3*4. /0. A!.2 .2* -/66&41 ./ ;//D , /(2*(&41 4/. ./ (*.0(4 A!.2/0. 2*(4 .2* -/0(3* / , 2!3 A&41*(!4>3 2* -&6* ./ 2(&-* *(* 2!3 6/.2*(A2/ 2&1 &--/67&4!*1 2!6 3/ ,&(<(*&.2*1 2*(;&3. &41 &1603 &77;!*1 , /(-/043*; ./ .2* *;72!-/(&-;* * A&3 &1=!3*1 4/. / 3**D 2!3 3!3.*(&45 6/(* <0. ./ , /;;/A &/A A2!-2 A/0;1 6**. 2!6 &41 , /041 &!.5/4 .2* 37/. A2*(* 32* 32/0;1 ;!* 1/A4 2* -/A 6*. 2!6 !4 2/-!3 &41 ;*1 2!6 !4./ /*/.!& * A&3 !4.*41!4> ./ 3&-(!,!-* .2* -/A &41 2&1 3*4. 2!3 -/67&4!/43 ./ &4*!>2</0(!4> 37(!4> ./ <(!4> .2* 4*-*33&(5 A&.*(A2*4 .2*5 A*(* &;; 3;&!4 <5 &3*(F 7*4. .2* /,,37(!4> / , (*3 &41 .2* (!453 !;72/3& A2!-2 >0&(1*1 .2* 37(!4> ,.*(&3*=*(* 3.(0>>;* &1603 1*3.(/5*1 .2* 1(&>/4 &41 &. .2* -/66&41 / , .2*4* 3/A*1 !.3 .**.2 /=*(.2* 4*!>2</0(!4> >(/041 2/3. / , &(6*1 6*4 37(04> 07 A2/ !66*1!&.*;5 ,/0>2. &41 3;*A *&-2 /.2*(&;; *0-*7. ,!=* 2* 30(=!=/(3 A2/ A*(* -&;;*1 8H 3/A4 I9 2*;7*1 &1F 603 ./ <0!;1 .2* &16*& /(.2* 3.(/4>2/;1 / , A2&. A&3 &,.*(A&(13 2*<*3 A2!-2 </(* 2!3 4&6* 2*5 A*(* .2* &4-*3./(3 / , .2* 2*<&4 &(!3./-(&-5 % &41 /4* / , .2*6 -2!V4 /(H .2* 3*(7*4.3 3/4 I <*-&6* .2* 203<&41 / , &1603 1&0>2.*(>&=* &1F 603 1!1 &./4*6*4. ./ (*3 ,/(*!>2. 5*&(3 ,/(.2* 3;&0>2.*(/ , .2* 1(&>/4 2*4 L*03 >&=* 2!6 ./ A!,* &(614!& .2* 1&0>2.*(/ , (*3 &41 72(/1!.* A2/ </(* 2!6 & 3/4 /;51/(03 &41 ,/0(1&0>2.*(3 0./4/* 4/ >&=* &41 6 ;* # / ' & &41 $ & (032*1 <5 .2*

.*((!<;* 1//6 A2!-2 A*!>2*1 07/4 2!3 2/6* 2* &,.*(A&(13 3/0>2. (*.!(*6*4. &6/4> .2* 4-2*;*! !4 ;5(!& & -/04.(5 A2!-2 2* 4&6*1 &,.*(2!3 3/4 ;;5(!03 A2/ A&3 </6 .2*(* * (*3!>4*1 .2* D!4>1/6 ./ ;;5(!03 &41 .2*4 2* &41 2!3 1&0>2.*(&44/4!& A*(* -2&4>*1 !4./ 3*(7*4.3 &41 -&((!*1 <5 L*03 ./ ;53!06 *(6*3 A&3 A/(32!77*1 !4 &6/.2(&-* &3 .2* &4-*3.(&; >/1 / , .2* !42&<!.&4.3 041*(.2* 4&6* / , &1603 /(&16!;03 # N 9 &41 !.3 .2*(*, /(* 4&.0(&; ./ -/4K*-.0(* .2&. .2* 2*<&4 &1603 A&3 /(!>!4&;;5 &4 &4-*3.(&; >/1 / , .2* 2*<&43 -/((*37/41!4> ./ .2* &6/.2(&-!&4 1*!.5 * A&3 (*>&(1*1 &3 .2* !4=*4./(/ , &>(!F -0;.0(* / , A/(D!4> !4 <(/4Q* &41 / , -!=!;!F Q&.!/4 !4 >*4*(&;* &41 !.3 ./ <* (*6&(D*1 &. .2* 3&6* .!6* .2&. .2* /;1*3. (**D 7/*.3 D4/A 4/.2!4> / , 2!3 6!>(&.!/4 ,(/6 .2* &3./(,(/6 >57./(/ , .2* 2/*4!-!&4 /(!>!4 / , 2*<*3 % 2*4 /4-* .2* ;&.*(3./(5 / , 2!3 2/*4!-!&4 1*3-*4. 2&1 .&D*4 32&7*! 2!3 4&6* "A&3 4&.0(&;5 -/44*-.*1 A!.2 .2* !4.(/10-.!/4 / , .2* &;72&<* , /(A2!-2 .2* (**D3 A*;; D4*A .2&. .2*5 A*(* !41*<.*1 ./ .2* 2/*4!-!&43

8@9 (**D 2!3./(!&4 ' NJ12/?43 / ') ' 8-/4-;03!/49

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.*-!;!03 .&.!43 /(.&.!43 3*-!;!43 A(!.*(/ , &.!4 -/6*15 *A&3 & &0; / , .2* (&-* / , .2* 430<(!&43 A2/ A*(* 3*..;*1 !4 77*(.&;5 *A&3 <(/0>2./ /(4*7(/<&<;5 &<0.$TC ' &3 &7(!3/4*(/ , A&(*A&3 3*. ,(** <5 /4* ; .2* &*-!;!! <*-&6* =*(5 !4./6&.* A!.2 44!03 &41 1!*1 4/.;/4> &,.*(2!6 - $??. A&3 ;/4> <*, /(* 2* -/0;1 /<.&!4 &, //.!4> /4 .2* 3.&>** <0. .2!3 /4-* &-2!*=*1 2* A/4 &-/43!1*(&<;*(*70.&!/4 &41 A&3 406<*(1 &6/4> .2* 6&3.*(3 / , 2!3 -(&,. 2* !4,;0F *4-* / , 44!03 3** 63./ 2&=* <**4 &77&(*4. !4 .2* -/67&(&.!=* -&(* &41 (*>0;&(!.5 A!.2 A2!-2 2!3 7!*-*3 A*(* -/43.(0-.*1 !-*(/ 2/A*=*(,!413 ,&0;. A!.2 2!3 1*,*-.!=* &.!4!.5 &41 A* 603. 2*(*, /(* !4,*(.2&. <*!4> / , &0;!32* *0.(&-.!/4 2* 4*=*(30-F -**1*1 !4 ,0;;5 6&3.*(!4> .2* 4!-*.!B / , -/;;/:0!&;. &.!4 2* .!.;*3 / , 3/6* , /(.5 / , 2!3 7;&53 2&=* 30(=!=*1 .2* -/4.*4.3 2* 6/3.;5 </(((/A*1 ,(/6 *4&41*(

3;!03 8$9 $ " ' 2

8@9 $ 7 & /6&4 /(&./(</(4 R@ * A&3 & 6&4 / , >(*&. >!,.3 <0. 1!33/;0.* ;!,* &3 *=*4 2!3 &1=/-&.* !-*(/ A&3 ,/(-*1 ./ &16!. !4 .2* 37**-2 A2!-2 2* 6&1* !4 2!3 1*,*4-*

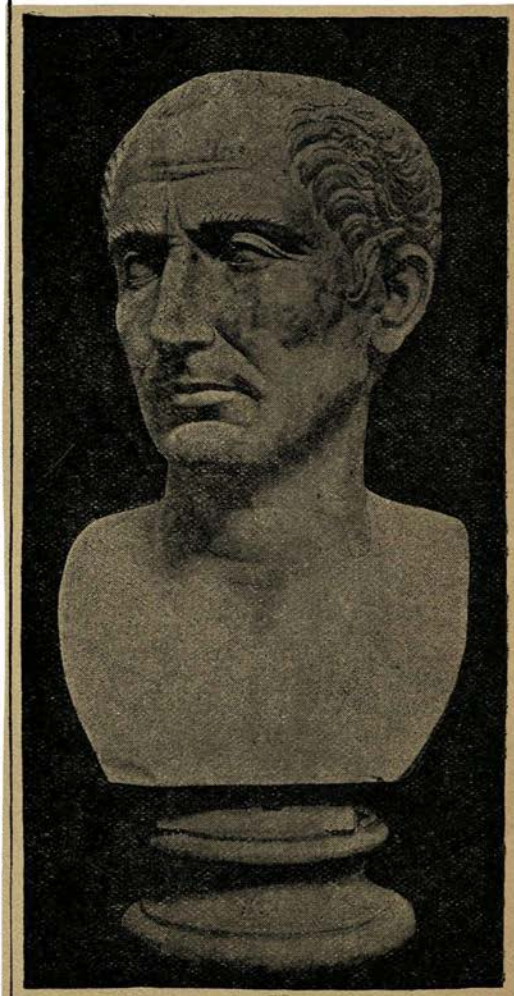
He belonged originally to the party of the *optimātēs;* but on the outbreak of the Civil War, attached himself to Cæsar; then, thinking himself slighted by the latter, he tried, during his prætorship, to stir up disorder in Rome. He was deprived of his office by the senate, fled from Rome, and, in the year 48 B.C., attempted to excite a rising in Lower Italy, in which he met with a violent death. According to Cicero, his strong point as an orator was his power of haranguing the people; in the courts he shone mostly when on the side of the prosecution. His style was, if Cicero may be believed, brilliant, dignified, and witty. Several of his letters to Cicero are preserved in the eighth book of Cicero's *Epistŭlæ ad Familiārēs*. They constitute an important contribution to the history of the time.

Cæneus (Gr. *Kaineus*). The son of Elătus and Hippīa, one of the Lăpĭthæ of Gyrtōn in Thessaly. The story was that he was originally a girl named Cænis (*Kainis*), whom her lover Poseidōn changed, at her own request, into a man, and at the same time rendered her invulnerable. Cæneus took part in the Argonautic expedition and the Calydonian boar-hunt. At the marriage of Pīrithŏüs, the Centaurs, finding him invulnerable, crushed him to death with the trunks of trees, and he was afterwards changed into a bird. (*See* PIRITHOUS.)

Cæsar was for centŭries the *cognōmen* of the ancient patrician family of the Iulii. From the dictator Gaius Iulius Cæsar it passed to his adopted son Octaviānus, the founder of the Roman empire, and was assumed by all the male members of the Julian dynasty, including the emperor. After this dynasty had died out, all the male members of the subsequent dynasties assumed it, to show that they belonged to the imperial house. But after the death of Hadrian in 138 A.D., the title of Cæsar was only assumed by the princes whom the emperors had named as their successors, or chosen to be their colleagues in the government.

Cæsar (*Gaius Iulius*). Julius Cæsar was born in 102 or 100 B.C., and was assassinated on March 15th, B.C. 44. He was famous no less as an orator and writer than as a general and statesman. Endowed with extraordinary natural gifts, he received a careful education under the superintendence of his mother Aurēlia. In B.C. 77 he came forward as the public accuser of Dolabella, and entered the lists against the most celebrated advocates of the day, Cotta and Hortensius. From that time his fame was established as that of an advocate of the first rank.

The faculties of which he had given evidence he cultivated to their highest point under the tuition of the rhetorician Mŏlō in Rhodes, and attained such success,



* CÆSAR.
(Naples, Museum.)

that his contemporaries regarded him as an orator second only to Cicero. Indeed, Cicero himself fully recognizes his genius, awarding especial praise to the elegance and purity of his Latin. Cæsar, however, left but few speeches in a finished state, and these have not come down to us. A number of writings give evidence of the

;04&(' 5*&(' /,' VV' 1&53' A!.2' .2*' 3/;&(' 5*&(' %/,' ?V' ' <0.' 2/A' 2*' 1!1' !.' !3' 4/.' -*(.&!4;5' D4/A4' 2*' 5 ' !4' CVN' - ' 7(/F <&<;5' !4.(/10-*1' .2*' 353.*6' /,' &1K03.6*4.' &,.*(A&(13' !4' 03*' --/(1!4>' ./' .2!3' &' -5-;*' /,',/0(' 5*&(3' A&3' .&D*4' !4' .2*' 3*-/41' 5*&(' /,' A2!-2' &4' !4.*(-&;&(5' 6/4.2' & " ' ' /,' @ ' 1&53' A&3' !43*(.*1' <*F .A**4' .2*' @C.2' &41' @V.2' /,' *<(0&(5' &41' !4' .2*' ,/0(.2' 5*&(' &' 6/4.2' /,' ! !' 1&53' <*F .A**4' .2*' @ (1' &41' @C.2' *<(0&(5' 203' .2*' 7*(!/1' /,'C' 5*&(3' &6/04.*1' ./' $C?V' 1&53' 0.' .2!3' >&=*' .2*' 5*&(' &4' &=*(&>*' /,' ??W' "1&53' /(' /4*' 1&5' ./' 6&45' 3/' .2&.' &' 37*-!&;' (*-.!,!-&.!/4' A&3' 4*-*33&(5' ,(/6' .!6*' ./' .!6*' 2!3' A&3' 7(/<&<;5' -&((!*1' /0.' <5' .2*' /6!33!/4' /,'' &4' !4.*(-&;&(5' 6/4.2' .' %A&3' .2*' <03!4*33' /,' .2*' , " ' ./' D**7' .2*' -&;*41&(' !4' /(1*(' <5' (*>0;&(' !4.*(-&;&F .!/4' ' <0.' 7&(.;5' ,(/6' -&(*;*334*33' 7&(.;5' ,(/6' 7/;!.!-&;' 6/.!=*3' .2*5' 6&1*' !43*(.!/43' &41' /6!33!/43' 3/' !4-/((*-.;5' &3' ./' <(!4>' .2*' -&;*41&(' !4./' -/67;*.*' 1!3/(1*(' &41' 1*3.(/5' .2*' -/((*37/41*4-*' <*.A**4' .2*' 6/4.23' &41' .2*' 3*&3/43' 2*' 6!3-2!*,' A&3' ,!4&;;5' (*6*1!*1' <5' 3*3&(' A!.2' .2*' &33!3.&4-*' /,' .2*' 6&.2*6&.!-!&4' /3!>*4*3' /' <(!4>' .2*' -&;*41&(' !4./' -/((*37/41*4-*' A!.2' .2*' 3*&3/43' .2*' 5*&(' C?' ' A&3' ;*4>.2*4*1' 3/' &3' ./' -/43!3.' /,' $V' 6/4.23' /(' C$V' 1&53' &41' .2*' -&;*41&(' D4/A4' &3' .2*' 0;!&4' A&3' !4F .(/10-*1' /4' .2*' $3.' &40&(5' "CV' ' 2!3' -&;*41&(' !3' ,/041*1' 3!67;5' /4' .2*' 3/;&(' 5*&(' A2!-2' !3' A*;;' D4/A4' ./' <*' &' 1!3-/=*(5' /,' .2*' >K7.!&43' 3*3&(' ,!0*1' .2!3' 5*&(' ./' " ?VB' 1&53' A2!-2' !3' -/((*-.' GA!.2!4' &',*A' 6!40.*3' ,.*(' .2!3' .2*' /(1!4&(5' 5*&(' -/4F 3!3.*1' /,' ?V' 1&53' 1!=!1*1' !4./' $@' 6/4.23' A!.2' .2*' 4&6*3' 3.!;' !4' 03*' =*(5',/0(.2' 5*&(' 2&1' ??' 1&53' &' 1&5' <*!4>' !43*(.*1' &.' .2*' *41' /,' *<(0&(5' 2*' 0;!&4' -&;*41&(' 6&!4.&!4*1' !.3' >(/041' .!;' $VR@' A2*4' /7*' (*>/(5'] ' -/((*-.*1' .2*' .(!,;!4>' *(((' A2!-2'3.!;' &..&-2*1' ./' !.' 2*' /;1'4&6*3' /,' .2*' 6/4.23' A*(*' (*.&!4*1' A!.2' .A/' *0-*7F .!/43' .2&./,' S0!4.!;!3' A2!-2' !4' 2/4/0(' /,' .3*3&(' A&3' -&;;*1' ' &41' .2&./,' *0' .!;!3' A2!-2' !4' ' (' A&3' -&;;*1' 1 ' !4' 2/4/0(' /,' .2*' *67*(/(' 2*' /;1'1!=!3!/43' %/,' .2*' ;04&(' 6/4.2' A*(*' &;3/' (*.&!4*1' ,/(' %-/4=*4!*4-*' /,' 1&.!4>' 2*3*' A*(*' 8&9' .2*' " ' 6&(D!4>' .2*' ,!(3.' &77*&K&4-*' /,' .2*' 4*A' 6/1/4' 8V9' .2*' > " ' 6&(D!4>' .2*' G,!(3.' :0&(.*(' 8-9' .2*' ' ' 6&(D!4>' .2*' ,0' 6//4' " ' 6*&43' 7(/7*(;5' .2*' Y1&5' /,' 306 6/4!4>' ,(/6' ./' 306 6/4' G 2*' , " -' A&3' </041' ./' /<3*(=*' .2*' ,!(3.' G72&3*' &41' ./' 6&D*' 2!3' &44/04-*6*4.' ./' B2*' -' A2/' .2*4' 306 6/4*1 .2*' 7*/7;*' ./' .2*' &7!./;' !4' ,(/4.' /,' .2*' $ ' 3/' -&;;*1',(/6' ' *(*' 2*' /,,*(*1' 3&-(!,!-*' &41' &44/04-*1' .2&.' .2*' ,!(3.' :0&(.*(' A/0;1' <*>!4' /4' .2*' V.2' /(' U.2' 1&5' 8!4-;03!=*9' 3' .2*' -&3*' 6!>2.' <*' 2!3' 1&5' A&3' -&;;*1' > " ' &3' 8&--/(1!4>' ./' /6&4' -&;-0;&.!/49' .2*' T.2' 1&5' <*,/(*' .2*' ,0;;' 6//4' &41' ,*;;' !4' &(-2' &5' 0;5' &41' -./<*(' /4' .2*' U.2' !4' .2*' /.2*(' 6/4.23' /4' .2*' V.2' 2*' &77*&(&4-*' /,' .2*' ,0;;' 6//4' A&3' -&;;*1' ' 87(/<&<;5' -/44*-.*1' A!.2' .2*' .(03-&4' A/(1' ' ./' 1!=!1*9' <*-&03*' !.' 1!=!1*1' .2*' 6/4.2' !4' .2*' 6!11;*' 2*' 1&53' /,' .2*' 6/4.2' A*(*' -/04.*1' <&-DF A&(13' !4' .2*' ,!(3.' 2&;' /,' .2*' 6/4.2' ,(/6' .2*' /4B' &41' 1*3' !4' .2*' ;&3.' 2&;' ,(/6' .2*' ^&;*413' /,' .2*' ,/;;/A!4>' 6/4.2' 2*' /6&43' &;3/' 2&1' &' A**D' -&;;*1' " " 2' " '/(' .2*' !4.*(=&;' <*.A**4' .A/' " " " ' .' -/43!3.*1' /,' *!>2.' 1&53' &41' ;!D*' /0(' A**D3' -/0;1' <*'1!=!1*1' <*.A**4' .A/' 6/4.23' /(' .A/' 5*&(3' 8 /(' ,0(.2*(' 1*.&!;3' ' > ,.*(' .2*' *3.&<;!32 6*4.' /,' .2*' *70<;!-' .2*' /6&43' 4&6*1' .2*!(' 5*&(3' &,.*(' .2*' -/430;3' &' -03./6' A2!-2' A&3' 6&!4.&!4*1' 1/A4' ./' .2*' (*!>4' /,' 03.!4!&4' 8VC$' ' .2*' .!6*' /,' 0>03.&B' !.' <*-&6*' .2*' 7(&-.!-*' !4' ;!.*(&.0(*' ./' 1&.*' *=*4.3' ,(/6' .2*' ,/041&.!/4' /,' /6*' A2!-2' .//D' 7;&-*' &--/(1!4>' ./' &((/' !4' UV ' &--/(1!4>' ./' &./' !4' UV$' +(' 5 :' 2*' (**D3'(*-D/4*1' .2*' -!=!;' 1&5',(/6' 3043*.' /' 3043*.' .2*' /6&43' 8;!D*' /0(3*;=*39',(/6' 6!14!>2.' ./' 6!14!>2.' 2*' 4&.0(&;' 1&5' A&3' (*-D/4*1' <5'</.2' &3' ;&3.!4>',(/6' 304(!3*' ./' 3043*.' 2*' 1!=!3!/43' /,' .2*' 1&5' A*(*',/(' &' ;/4>' .!6*' 6&1*' /4' 4/' -/6 6/4' 7(!4-!7;*' .' A&3',/(' 6!;!.&(5' 70(F 7/3*3' .2&.' .2*' /6&43',!(3.' 2!.' /4' 30-2' &' 7(!4-!7;*' 1!=!1!4>' .2*' 4!>2.' 10(!4>' 3*(=!-*' !4./',/0(' *:0&;' A&.-2*3' & 1 ' /((*F 37/41!4>' ./' .2!3' A*' ,!41' &4/.2*(' 1!=!3!/4' 87(/<&<;5' -&;-0;&.*1' !6 6*1!&.*;5',/(' .2*' -/0(.3' /,' K03.!-*9' !4./' " ' 83.6(!3*' ./' T' /(' $N9' ,/(*4//4' & ' &,.*(4//4' & ' 04.!;' ' /(' C' &41' *=*4!4>' & ' ,(/6' .2*4-*' .!;;' 3043*.' ' ,.*(' .2*' !4.(/10-.!/4' /,' 304"1!&;3' &41' A&.*(" -;/-D3' .2*' 1&5' &41' 4!>2.' A*(*' 1!=!1*1' *&-2' !4./' ! '2/0(3' <0.' .2*' 1!=!3!/4' A&3',/041*1' /4' .2*' =&(5!4>';*4>.2' /,' .2*' 1&5' 3/' .2&.' *&-2' 2/0(' /,' .2*' 1&5' A&3';/4>*('&41' -/4F =*(3*;5' *&-2' 2/0(' /,' .2*' 4!>2.' 32/(.*(' !4' 306 6*(' .2&4' !4' A!4.*(;>&' '</!.' A!.2' ;&(>*' 4&!;3' !4' .2*' 3/;*' A/(4' !4' &4-!*4.' .&;5' <5' 204.36*4' A&>>/4*(3' &41' 7*&3&4.3' &41' 10(!4>' .2*' !67*(!&;' 7*(!/1' <5' -/66/4' 3/;1!*(3

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&;;!3./' 8 (' ' 45672' .2*' 1&0>2.*(' /,' .2*' (-&1!&4' 5-& 4' &41' &-/67&4!/4' /,' (.*6!3' 2*' <*-&6*' <5' L*03' .2*' 6/.2*(' /,' (*&3' .2*' &4-*3./(' /,' .2*' (-&1!&43' 2*' A&3' .0(4*1' !4./' &'<*&(' &--/(1!4>' ./' /4*' &--/04.' <5' .2*' K*&;/03' *(&' &--/(1!4>' ./' &4/.2*(' e' L*03' A2/' A&3' &40!/03' ./' 7(/.*-.' 2*(' ,(/6' *(&3' A(&.2' 4' .2!3' 32&7*' 32*' A&3' 3;&!4' <5' (.*6!3' &41' 3*.' &6/4>' .2*' -/43.*;;&.!/43' <5' L*03' 041*(' .2*' .!.;*' /,' .2*' 2*" *&(' 2*(*' A&3' &4/.2*(' 3./(5' &--/(1!4>' ./' A2!-2' &;!!3./3' 3/4' A&3' !4.*41!4>' ./' 3;&5' 2!3' .(&43,/(6*1' 6/.2*(' A2!;*' 204.!4>" 07/4' A2!-2' L*03' 3*.' 2!6' !4' .2*' 3D5' 041*(' .2*' 4&6*' /,' (-.0(03' # '.2*' &.-2*(' /,' .2*' *&(' &41' 2!3' 6/.2*(' 041*(' .2*' 4&6*' /,' (-.03' & '.2*' 2*" *&(' 3' .2*' 3.&(3' <*&(!4>' .2*3*' 4&6*3' 4*=*(' 3*.' /6*(' 1*3-(!<*3' .2*6' &3' .2*' /4;5' /4*3' A2!-2' 2&=*' 4/' 32&(*' !4' .2*' <&.2' /,' .2*' /-*&4' &.*(' 7/*.3' &--/(1!4>;5' !4=*4.*1' .2*' ,0(.2*(' 3./(5' .2&.' *.253' A!32!4>' ./' >(&.!,5' *(&' (*,03*1' ./' (*-*!=*' 2*(' ,/(6*(' (!=&;' !4./' 2*(' A&.*(3

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&;;54.*(!&' 8 (' :" ' &41' , :"V '8H *&3.3' /,' 1/(4!4>' &41' ;*&43!4>'!9' A*(*' .2*' 4&6*3' >!=*4' ./' .2*' .A/-2!*,' 1&53' /,' &' 3*(=!-*' /,' &./4*6*4.' 2*;1' &.' .2*43' ,(/6' .2*' $T.2' ./' .2*' @V.2' /,' 2&(>*;;/4' 8/(' &5" 04*9' 2*' (*-.2.2*06' /(' 3&4-F .0&(5' /,' .2*4*' /,' .2*' 3.(/4>2/;1' A&3' -;*&43*1' .2*' &4-!*4.' A//1*4' !6&>*' /,' .2*' >/11*33' A&3' 04-;/.2*1' .2*'>&(6*4.3' A&32*1' &41' .2*' !6&>*' !.3*;,'70(!,!*1' 2*3*' 10.!*3' A*(*' 7*(,/(6*1' A!.2' 653.*(!/03' (!.*3' <5' G.2*' ,&6!;5' /,' .2*' (&0!*>!13*' GA!.2' .2*' &!1' /,' -*(.&!4' A/6*4' -&;;*1' ;54.(!1*3' 2*' ;54.*(!&' /(' 1&5' /4' A2!-2' .2*' !6&>*' A&3' A&32*1' A&3' &4' .6;0-D5' 1&5' /4' A2!-2' 4/' 70<;!-' <03!4*33' A&3' .(&43&-.*1' 2*' -*(*F 6/4!*3' A/0;1' 3**6' /(!>!4&;;5' ./' 2&=*' <**4' !4.*41*1' ./' -/66*6/(&.*' .2*' 3*&3/4' /,' .2*' 5*&(' &41' .2*' (!7*4!4>' /,' .2*' /6' &41',(0!.

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0;5 203 &2!3./(!-&;<&3!3 A&3 >!=*4./ !.2/0>2 X!!* .(0* /(!>!4 /,</.2,*3.!=&;3 2&1 <**4 7(/<&<;5,/(>/..*4 ,.*(.2*!(1*,*&.<5.2* &0;3.2* /6&43 A*(*-/4F :0*(*1&41 70./,;!>2.<5&3011*4&..&-D /,.2*!(4*!>2</0(3.2* &.!43 A2/ 1*F 6&41*1.2* 30((*41*(/,&;&(>* 406<*(/, >!(;3&41 A!1/A3 2*(*07/4 &.2* 30>F >*3.!/4 &B$ -&;;*1 0..!;&8/(2;;/.!39 .2* ,*6&;* 3;&=*3 1!3>0!3*1.2*63*;=*3 &3 /6&4 ;&1!*3 A*4.!4./.2* *4*65 3 -&67 &41 -/4.(!=*1./ 6&D* .2* *4*65 1(04D A2!;* 0...;&-;!6<!4>&A!;1,!>".(** >&=* .2*3!>4&;,/(.2* /6&43./&..&-D<5 2/;1F !4> 07&./(-2 2* , 1 A*(* -*;*F <(&.*1<5&6!6!-,;!>2. 4.2* U.2 0;5 .2* ,*6&;* 3;&=*3 A*4.!4 7(/-*33!/4./.2* ,!>". (** A2*(*.2*5 -&((!*1 /4 &;; D!413 /, 37/(.3 A!.2.2* &33*6<;*1 60;.!.01* *F 3!1*3.2!3 .2*(* A&3 &3&-(!,!-* &41 &,*3.&; 6*&; &..2* .(** &41 /4.2* 4*0.1&5 &.2&4D3>!=!4> -*;*<(&.*1<5.2* J753 8 (1 &41 &(- 3,06 8 (" &(1,!& 2*.0.*;&(5>/11*33 /, 2!4>*3 !4 /.2*(A/(13 /, ,&6!;5 ;!,* &6/4> .2* /6&43 2* A& 3077/3*1./ A&(1 /, &;;.2* 4/0!/03 !4,;0*4-*3 /, *=!;37!(!.3 *37*-!&;;5/,.2* 1 A2/ A*(* <*;!*=*1 ./30-D.2* <;//1/,-2!;1(*4 <5 4!>2. . !3 1/0<.,0;A2*.2*(32* !3 ./ <* !X,/4.!,!*1 A!.2.2*>/11*33 &4!& A2/ !3 3&!1 ./ 2&=* .&D*4.2* ;&(>*(/(>&43/,.2* </15 [2*&(. ;04>3 &41 ;!=*([041*(2*(*37*-!&; 7(/F .*-.!/4 &(4& 2&1 &32(!4* /4 .2* .*;!&4 !;;!4 /6*&41&,*3.!=&; /4 .2* $3./, 04* &. A2!-2.2*5&.* <*&43 &41 <&-/4 &41 6&1* /,,*(!4>3/,.2*6./.2* >/11*33 &(!3 & 0 &(6*4.& /(&(6*4,!3 4 &4-!*4. .&;!&4>/11*33/,7(/72*-5 A2/ 7(/.*-.*1 A/6*4 !4 -2!;1"<!(.2 4 /6* 32* 2&1 & 7(!*3. &..&-2*1./ 2*(.2* < "$ " &41 &32(!4* 4*&(.2 >&* 041*(.2* &7!./;4&6*1&,.*(2*(.2* $ " 4.2!3 37/.2* /6&4 6&.(/43 -*;*<(&.*1 !4 2*(2/4/0(.2* ,*3.!=&;/,.2* $ " ! .2* "* 6!1 " -&3F 3!3.!4> A/ $ " -&;;*1, ! /(" &41, A*(* A/(32!77*1 &3 2*(3!3.*(3 &41&..*41&4.3 2*3* 4&6*3 A*(* 3/6*.!6*3 *07;&!4*1 !.2 (*,*(*4-* ./ -2!;1<!(.2 3/6*.!6*3 &3 !41!-&.!4> .2* 7/A*(/,.2* >/11*33/,,&.* /;//D !4./.2* 7&3.&41,0.0(* 4 .2* ;*>*41 /,.2* 41&.!/4/,/6* &(6*4.& &77*&(3 &3 .2* 7(/72*.!-6/.2*(/(A!,* /,.2* (*&" &.(,.. =/ ;!(.(&4 B (

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&(5&.!1*3 8 (: . .*-24!-&; .*(6 /, (**D &(-2!.*-.0(* &(5&.!1*3 A*(* ,*6&;* 3.&.0*3 -;/.2*1 !4 ;/4> 1(&7*!5 03*1 !43.*&1 /, 32&,.3 /(-/;06 43 ./ 307F 7/(. .2* *4.&<;&.0(* /, & .*67;* 83** -0.9 2* 4&6* 7(/7*(;5 6*&43 H 6&!1*43 /, &(53* #9 : & 7&(.&4 ./A4 /4 .2* (-&1!&4 ,(/4.!*(*(*!. A&3 .2* -03./6 ,/(<&413 /, >!(;3 ./ 7*(,/(6 .2*!(-/04.(5 1&4-*3 &. .2* 5*&(;5 ,*3.!=&;3 /, (.*6!3 ^&(5&.!3 4 1/!4> 3/ .2*5 3/6*.!6*3 &330 6*1 .2* &..!.01* A2!-2 30>>*3.*1 .2* ,/(6 &1/7.*1 <5 .2* &(.!3.3 !4 .2* 3.&.0*3 6*4.!/4*1 &</=* # &33&41(& 8 (" 4 /6*(&33&41(& !3 .2* ,&!(*3./, .2* 1&0>2.*(3 /, (!&6 &41 *-2<& /(.2* 7(/6!3* /, 2*(;/=* 7/;;/ -/4,*((*1 07/4 2*(.2* >!,./, 7(/72*-5 32* </D* 2*(A/(1 &41 .2* >/1 704!32*1 2*(<5 ;*..!4>3 2*((*.&!4 .2* >!,. <0. 1*7(!=!4> 2*(/, .2* 7/A*(/, 6&D!4> 2*(2*&(*(3 <*;!*=* 2*(*(0..*(F &4-*3 A*(* .2*(*,/(* ;&0>2*1 ./ 3-/(4 &3 .2* (&=!4>3 /, & 6&1 A/6B . A&3 !4 =&!4 .2&. &. .2* <!(.2 /, &(!3 32* &1=!3*1 .2&. 2* 32/0;1 <* 70. ./ 1*&.2 &41 .2&. A2*4 *;*4 -&6* ./ (/5 32* 7(/72*3!*1 .2* 1*3.(0-.!/4 /, .2* -!.5 2*4 .2* -!.5 A&3 .&D*4 32* A&3 1(&>>*1 <5 K&O .2* 3/4 /, (;*03 ,(/6 .2B &;.&(/, .2*4* &. A2!-2 32* 2&1 .&D*4 (*,0>* <0. >&6*K4" 4V4 (*3-0*1 2*(&41 .//D 2/(&3 26 3;&=* ./ 5-*4&* *(* 32* A&3 3;&!4 <5 ;5" .3*46*3.(&A2*4 >&6*64/4A&3 60(1*(*1 2* A&3 A/(32!77*1 A!.2 7/;;/ !4 3*=*(&; 7;&-*3 041*(.2* 4&6* /, ;*0&41(& &33!&443 &3303 @ (&33;11/(03 *4&./(# 1 A&3 </6 !4 (..!06 &</0. CRN * <*;/4>*1 ./ &4 /;1 /6&4 ,&6!;5 A2!-2 2&1 7&(.!-0;&(;5 !4 .2* .2(**7(*-*1!4> >*4*(&F .!/43 1!3.!4>0!32*1 !.3*;, !4 .2* 70<;!-3*(=!-* !3 ,&.2*(3./1 !4 2!>2 ,&=/0(A!.2 2*<1 (!- A2/ 2&1 &4 *:0&; (*>&(1 ,/(2!3 .&;*4.*1 &41 2!>2;5 *10-&.*1 3/4 &33!/1/(03 *4&./(4 &--/04./ /, 2!3 .(03.A/(.2!4*33 &41 &<!;!.5 &3 &3.&.*36&4 .2* 5/04>*(&33!/1/(03 A&3 &77/!4.*1 ./ .2* 2!>2*3. /,,!-*3 <5 2*/1/(!- &41 2!3 30--*33/(3 * A&3 -/430; V$C &41 %,/0(.!6*3 /(& 7*(!/1 /, 4*&(;5 ,/(.5 5*&(3 2* 4K/5*1 &4 &-.!=* &41 30--*33,0; -&(**(!4 .2* 70<;!-3 &16!4!3.(&" .!/4 4/.&<;5 &3 2*/1/(!-3 7(!=&.* 3*-(*" .&(5! ,.*(.2* ,&;;/ !.!>*3 !4 VCN &33!/1/(03 (*.!(*1 ./ .2* 6/4&3.*(5 /, !=&(!06 8 !=&(*3*9 A2!-2 2* 2&1 ,/041*1 /4 2!3 *3.&.*3 !4 (&..!06 *(* 2* 7&33*1 .2* (*3 /, 2!3 ;!,* !4 (*;!>!/03 *0*(-!3*3 &41 ;!.*(&(5 ;&</0(* 1!*1 &</0. VUV 6/4> .2* A/(D3 A2!-2 2* -/67/3*1 10(!4> 3 -&(**(&3 &3.&.*36&4 A* 2&=* &04!=*(3&; 2!3./(5 -&;;*1 $(G" ,(/6 1&6 1/A4 ./ .2* 5*&(A2*4 !. A&3 A(!.F .*4 2!3 -/43!3 6&!4;5 /, &(-&.&;/>0* /, .2* /6&4 -/430;3 &41 !3 .2* ;/4>*3 /, &;(.2* ;!3.3 A2!-2 2&=* -/6* 1/A4 ./ 0

4/.2*(' A/(D' /,' 2!3' A2!-2' 2&3' 30(=!=*1' !3' .2*' = ' &9 ' !4' .A*;=*' </!D3' 2!3' !3' &' -/;;*-.!/4' /,' !67*(!&;' (*3-(!7.3' &41' 2&3' -/43!1*(&<;*' 2!3./(!-&;' !67/(.&4-*' 2*3*' (*3-(!7.3' 2*' 6&1*' /0.' 7&(.;5' !4' .2*' 4&6*' /,' 2*/1/(,/'&!K1' 2!3' 30--*33/(3'7&(.;5' !4' 2!3' /A4' 4&6*' &3' ' 2*' </!D' ;!D*A!3*' -/4.&!43' &' -/;;*-.!/4' /,' ,/(60;&(!*3' ,/('1*-(**3' /,' 4/6!4&.!/4' !3' /.2!-' 2!3'" ./(K(' !4' .A*;=*' </!D3' !3' /4;5'7(*3*(=*1' !4' *0.(&-.3' &41' !4' .2*' 7&(&72(&3*' /,' /(1&4*3 2*' -2!*,' &!6' /,' 2!3' 6/4&3.!-' ;!,*' A&3' &' 4/<;*' /4*' *' 2/7*1' ./' 6&D*' .2*' 6/4&3F .*(!*3' &4' &35;06' /,' D4/A;*1>*' !4' A2!-2' .2*' ;!.*(&.0(*' /,' -;&33!-&;' &4.!:0!.5' &41' /,' .2*' 2(!3.!&4'&>*' 6!>2.' 2*'-/;;*-.*1' 2*!(&6" 2*(' /,' </!D3' A&3' ./' <*' !4-(*&3*1' <5' -/75!3.3' &41' .2*' -;*(>5' A*(*' ./' >&!4' .2*!(' 4*-*33&(5' *10-&.!/4' <5' 3.015!4>' .2*6' 2*' ;!<(&(!*3' &41' 3-2//;3' /,' .2*' 6/" 4&3.*!"!*3' !4' 30--**1!4>' **4.0(!*3' A*(*' 0;.!F 6&.*;5',/(6*1'07/4'.2*' 6/1*;' A2!-2' 2*' 3*.' 07 *3!1*3' &' 406<*(' /,' .2*/;/>!-&;' A(!.!4>3' 2*' -/67/3*1' !4' &</0.' VCC' &' 3/(.' /,' 4-5-;/F 7&*1!&'!4',/0('</!D3',/(' .2*' !43.(0-.!/4' /,' 2!3' 6/4D3' 2!3' !3' .2*'H' 4' 3.(0-.!/43'!4' &-(*1'&41' (/,&4*' !.*(&.0(*' #'" ' 85 "H^' ' ' < ' 2*',!(3.' %7&(.' !3' &4' !4.(/10-.!/4' ./'.2*'3.015'/,'.2*/;/>5' .2*' 3*-/41' &' 3D*.-2' /,' .2*' 3*=*4' ;!<*(&;' &(.3 !4&;;5' !4' 2!3' 4!4*.5" .2!(1'5*&('2*' -/67!;*1'&'.(*&.!3*' 5 ' (2 < (' /(' /4' (1 (: &3&;17*&8 (' ! T ' ' ' " 95 &33!03' &3' $ ' " ' ! ,*- " O! ' 8@9' ' !/' ") &3.!;;&'8 (' ' 4567 2' .2*' "1&0>2.*(' /,' .2*' (!=*.">/1' -2*;/!!3' 0(F 30*1' <5' 7/ /' 32*' .2(*A' 2*(3*;' !4./' & 37(!4>'/4' /04.' &(4&3303'A2!-2'.//D' !.3' 4&6*' &,.*(' 2*(' 2*' 37(!4>' A&3' -/43*F -(&.*1'./' 7/;;/'&41'.2*' 03*3'&41'!.' A&3' !4'!.3' A&.*(.2&.' .2*' 7!;>(!63' ./' .2*' 4*!>2F </0(!4>'32(!4*/,' *;72!'70(!,!*1'.2*63*;=*3 2*' /6&4' 7/*.3' !410;>*1' !4' .2*' ,!-.!/4' .2&.' !.' -/4,*((*1'7/*.!-'!437!(&./!4 &3./(8 (' 13XV(9'J' , - ' ' ( ) &3.(' ' /6&4' -&67' ,/(.!,!*1' A!.2' &' (&67&(.' &41' 1!.-2' 0A1*' /,' A2!-2' &' /6&4' &(65' 4*=*(' 37*4.' &' 3!4>;*' 4!>2.' .' A&3' 6&(D*1' /0.' /4' &7;&-*' 3*;*-.*1' <5' /,,!-*(3'1*.&-2*1' ,/(' .2*' 70(7/3*'>*4*(&;;5' /4' .2*' 370(' /,' &' 2!;;' 2*' 3&6*' 7;&4' A&3' &;A&53' /<3*(=*1'&41' .2*' 1!=!3!/43'!41!-&.*1' <5' -/;/0(*1' ,;&>3' &41' ;&4-*3' f' .2&.' .2*' 1!=!3!/43' /,' .2*' &(65' &Z' .2*5' -&6*' !4' -/0;1' ,!41' .2*!(' 7;&-*3' &.' /4 *' 4' .2*' 6!11;*' /,' .2*' !41'-*4.0(5' &--/(1!4>'./' .2*' &--/04.' /,' /;5<!03' f=!' @Ug' .2*' 7;&4' /, 'B h ' n '[nn 04' K' /S' KC' K K ' % ` dd - 0 & X(!*" = % "O(E J% ' ' '

!4.' .2*' 3*&' <5' 2*(' 203<&41' /4' &--/04.' /,' 2*(' &10;.*(5' A!.2' 25*3.*3' # ' ') ' 0;;43' #6 " ' = " ' $ ' *(2&73' .2*' >(*&.*3.' /,' /6&4' ;5(!-'7/*.3' *' A&3' 2/(4' &.' *(/4&' ' "' RU' &41' 1!*1' &</0.' VC' *' -&6*' ./' /6*' A2!;*' 3.!;;' 5/04>' &41' ,/041' 2!63*;,' !4' =*(5' >//1' 3/-!*.5'.2*(*'<*!4>'&16!..*1' ./' .2*' -!(-;*' /,' 30-2' 6*4' &3' !-*(/' /(.*43!03' &41' /(4*F ;!03' *7/3' &41' .2*' 7/*.3' !44&' &41' &;=03' *' 2&1' &4' *3.&.*' /4' .2*' -03' &(!03'8 &DB' /,' /6/9' &41' &4/.2*(' &.' !<0('8 !=/;!9" <0.' !,' A*' 6&5' <*;!*=*' A2&.' 2*' 3&53' &</0.' 2!3' 1*<.3' &41' 7/=*(.5' 2!3' 7*-04!&(5' &,,&!(3' 603.' 2&=*' <**4' !4' <&1' /(1*(' 4' -/43*:0*4-*' /,' .2!3' 2*' &..&-2*1' 2!63*;,' ./' .2*' 7(/7(&*./(' &!43' *66!03' /4' 2!3' >/!4>' ./' !.254!&' !4' .2*' 5*&(' VU' *' >&!4*1' 4/.2!4>' <5' 1/!4>' 3/' &41' !4' .2*' ,/;;/A!4>' 37(!4>' (*F .0(4*1' 2/6*' &;/4*' =!3!.!4>' /4' .2*' A&5' .2*' ./6<' /,' 2!3' <(/.2*(' A2/' A&3' <0(!*1' 4*&(' (/5' /6*' /,' 2!3' 6/3.' <*&0.!,0;' 7/*63' &(*' !437!(*1' <5' 2!3' ;/=*' ,/(' &' ;&15' A2/6' 2*' &11(*33*3' &3' *3<!&' &' 7&33!/4' A2!-2' 3**63' ./' 2&=*' <**4' .2*' 6!4' /,' 2!3' ;!,*' 2*' 2&3' <**4' A!.2' >(*&.' 7(/<&<!;!.5' !1*4F .!,!*1' A!.2' .2*' <*&0.!,0;' &41' >!,.*1' <0.' 047(!4-!7;*1' 3!3.*(' /,' .2*' 4/./(!/03' ;/1!03' &41' A!,*' /,' *.*;;03' *;*(' &.0;;03' A&3' !4' 2!3' *!>2.**4.2' 5*&(' 3/' /=*(6&3.*(*1' <5' 2!3' 7&33!/4' ,/(' 2*(' .2&.' 2*' A&3' 04&<;*' *=*4' &,.*(' 2*' 2&1' <(/D*4' /,' &;' (*;&.!/43' A!.2' 2*(' &41' -/6*' ./' 1*37!3*' 2*(' ./' 1!3F *4.&4>;*' 2!63*;,

4' 2!3' !4.*(-/0(3*' A!.2' 2!3' 406*(/03' ,(!*413' &.0;;03' A&3' <(!>2.' &41' &6!&<;*' <0.' 0437&(!4>' !4' .2*' (!1!-0;*' 2*' 7/0(*1' 07/4' 2!3' *4*6!*3' *' 2*;1' &;//,' ,(/6' 70<;!-' ;!,*' &41' ,(/6' &45' &-.!=*' 7&(.!-!7&F .!/4' !4' 7/;!.!-3' <0.' 4/4*' .2*' ;*33' <!..*(;5' 1!1' 2*' 2&.*' .2/3*' A2/6' 2*' .2/0>2.' (*37/4F 3!<;*' ,/(' .2*' !4.*(4&;' 1*-;!4*' /,' .2*' *F 70<;!- [.2*63*;=*3' &41' &;' .2*!(' -(*&.0(*3' 4' 63&(' .2/0>2' 2!3' /A4' ,&.2*(3' >0*3.' &41' /4' 2!3' 1!33/;0.*' ,&=/0(!.*' &60((&' 2*' 6&D*3' =!/;*4.' &..&-D3' 0.' 2*' !3' 3&!1' ./' 2&=*' &7/;/>!Q*1' ./' &*3&(' A2/' 6&>4&4!F 6/03;5',/(>&=*' 2!6

&.0;;03' 7/*63' 2&=*' 4/.' &;' 30(=!=*1' *' 3.!;' 7/33*33' $$?' A2!-2' A!.2' .2*' *OF -*7.!/4' /,' .2(**' &(*' !4-;01*1' !4' &-/;;*-.!/4' 1*1!-&.*1' ./' /(4*;!03' *7/3' 2*' ,!(3.' 2&;' !3' .&D*4'07' A!.2' 6!4/(7!*-*3' /,' =&(!/03' -/4.*4.3' &41' A(!..*4' !4' 1!,,*(*4.' ;5(!-' 6*.(*3' *37*-!&;;5'.2*' !&6<!-' 2*4',/;;/A3' &' 3*(!*3' /,' ;/4>*(' 7/*63' &6/4>3.' .2*6' .2*' A/41*(,0;' ;&6*4.' /,' ..!3' A/41*(,0;' !4' 37!.*' /,' .2*' (*70;3!=*4*33' /,' !.3' 30<(*-.' .2*' *7!-' 4&((&.!=*' /,' .2*' 6&((!&>*' /,' *;*03

&41' 2*.!3' &41' &' 7&(&72(&3*' /,' &;;!6&F -203' <*3.' *;*>5' H' 2*' /-D' /,' ?(`4;-*I' 2*3*' &(*' &;;' !4' .2*' ;*0&41(!&4' 6&44*(' 2*' (*6&!4!4>'7/*63' &(*' 32/(.' &41' /,' 1!,F ,*(*4.'-/4.*4.3' <0.' &;;' (!..*4' !4' *;*>!&-3

&.0;;03' .&D*3' 2!3' 7;&-*' !4' .2*' 2!3./(5' /,' ;!.*(&.0(*' &3' .2*' *&(;!*3.'-;&33!-&;' 6*.(!3.' &6/4>' .2*' /6&43' /' !3' &' -/67;*.*' 6&3.*(' /,' &;;' =&(!*.!*3' /,' =*(3*' /(*' .2&4' .2!3' 2*' 2&3' .2*' &(.' /,' *07(*33!4>' *=*(52&3*' /,' ,**;!4>' !4' .2*' 6/3.' 4&.06' &41' *&0.!,0;' 3.5;*" ;/=*' ,/(.04&.*' &41' 04,/(F .04&.*' 3/(((/A' ,/(' &' 1*7&(.*1' <(/.2*(' A&4./4' 3*430&;!.5' .2*' .*41*(*3.',(!*4132!7' .2*'<!..*(*3.'-/4.*67.'&41' .2*' 6/3.' <0(4!4>' 2&.(*1' =*4' 2!3' !6!.&.!/43' /,' .2*' (**D' &(*' 4/.' !.2/0.' &4' /(!>!4&;' 3.&67' /,' .2*!(' /A4

&07V4&' 'A

&43;&'8 (' ' ',;&.'<(/&1"<(!6' 6*1',*;.'2&.K'A/(4'!4' &-*1/4!&'&41'<5'.2*' &-*1/4!&4' 3/;1!*(3' 2*4' A/(4' <5' 7*(F 3/43' 2!>2'!4' 3/-!*.5'!.'A&3'-/;/0(*1' 70(7;*' .2*' D!4>3' /,' &-*1/4' 30((/041*1' !.' A!.2' .2*' (/5&;' 1!&1*6' &41' .203' .2*' 70(7;*' 'A!.2' .2*' 1!&1*6'-/4.!40*1'./'<*' .2*' *6<;*6' /,' 3/=*(*!>4.5' !4' .2*' D!4>1/63' 2!-2'&(/33',(/6' .2*' *67!(*' /,' ;*O&41*(' 2*' &-*1/4!&4' 2&.' &3' !4' ;&.*(' .!6*3' &1/7.*1' <5',!32*(6*4'&41' 3&!;/(3'&.' /6*' &41' !4' .2*' !67*(!&;' 7*(!/1' A&3' A/(4' <5' .2*' 2!>2*(' -;&33*3' !4' .2*' .2*&.(*' &3' &' 7(/.*-.!/4' &>&!43.' .2*' 304

J=?&' '

?<*3'8 2,' ' ' (**D' 72!;/3/72*(' .2*' &0.2/(' /,' &' 3-2/!;"</D' -&;;*1' , " -' /(' H' 2*' !-.0(*I'A2!-2' A&3'=*(5'7/70;&(' &41' A&3'.(&43;&.*1'!4./' (&<!-' .' !3' &1!&;/>0*' 07/4' &4' &;;*>/(!-&;' 7!-.0(*' (*7(*3*4.!4>' .2*' -/41!.!/4' /,' .2*' 3/0;' <*,/(*' !.3' 04!/4' A!.2' .2*' </15' &41' .2*' 4&.0(*' /,' 206&4' ;!,*' !4' >*4*(&;' 2*' 70(7/(.' /,' .2*' -/4=*(3&.!/4' !3' ./' 7(/=*' .2&.' .2*' ,/041&.!/43' /,' 2&77!F 4*33' &(*' 1*=*;/76*4.' /,' .2*' 6!41' &41' .2*' -/43-!/03' 7(&-.!-*' /,'=!(.0*' .' !3' 1/0<.,0;' ./' A2!-2' *<*3' .2*' <//D' !3' ./' <*' (*,*((*1',/(' .2*(*' A*(*' A&3' *<*3' /,' 2*<*3' .2*' 1!3F -!7;*' /,' -(.*3' A2/' GA(/.*' .2(**' 72!;/3/F 72!-&;' 1!&;/>0*3' /4*' /,' A2!-2' </(*' .2*' .!.;*' , " -*' .2*' /.2*('A&3'&' ./!-'/,' 5Q;'*' -03' A2/',;/0(!32*1'!4' .2*' @41'-*4.0(5' -(/73'8 (' ' 4*' /,'.2*' R 1 " '/,' ..!-&'&41'&3' 30-2'(*7(*3*4.*1'A!.2' &' 206&4'</15'*41!4>'!4'&' 3*(7*4.'# '-0.9' 4' .2*' ;&.*('3./(5' 2*' A&3' *((/4*/03;5'(*7(*F 3*4.*1'&3' 2&=!4>' -/6*' ./' ..!-&',(/6' &!3' !4' >57.' *' A&3' 3&!1' ./' 2&=*' <**4' .2*' ,!(3.' D!4>' /,' ..!-&' A2!-2' A&3' -&;;*1' &,.*(

!! 6 *-('%9 & *! 1!=!1*1 .2*! (/1*! !4F
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-(/7!&,.(2!6 &41 !4.(/10-*1 .2*! *;*"

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A2/ ,;/0(!32*1 !4 .2*! &>*! /, !<*(!03
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-;/7&*1!- A/(D -&;;*1 8!. /0;1 3**6 ! 1*3!>4*1 &,.*(.2*! 6&64*(/, &((/ 3 5 2
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,!=*"!5*&(;5-*4303 2*!/,,!-*! A&3 /4*!/, .2*!
2!>2*(6&>!3.(&-!*3 &41 -/0;1 /4;5 <*! 2*;1
/4-*! 25 .2*! 3&6*! 7*(3/4 . &3 &. ,!(3.
-/4,!4*1 ./ .2*! &.(!-!&43" !4 V$!.
A&3 .2(/A4 /7*4 ./ .2*! ;*<*!&43 &41&,.*(
T /4*! /, .2*! -*43/(3 &3 /2;!B1 <5 ;&A
./ <*! &7;*<*!&4 4 /--&3!/4/!& " .2*! -*43/(3 A*(*! *;*-.*1 3/<4 &,.*(.2*! &-F
-*33!/4 ./ /,,!-*! /, .2*! 4*A -/430;3 A2/
7(*3!1*1 /=*(.2*! &33*6<;5 2*5 *(*
030&;;5 -2/3*4 ,(/6 .2*! 406<*(/, " 2
'$ /(7*(3/43 A2/ 2&1 <**4 -/430;3
--/(1!4>;5 .2*! -*43/(32!7 A&3 (*>&(1*1 !,
4/. &3 .2*! 2!>2*3./,,!-*! /, 3.&.*! &.;*&3.&3
.2*! 2!>2*3.3.*7 !4 .2*! ;&11*(/, 7(/6/.!/4
2*! 4*A;5 *;*-.*1 -*43/(3 *4.*(*1 !6 6*F
1!&.*;5 &,.*(10*! 3066/43 07/4 .2*!(/,,!-*
.3 10(&./!4 A&3 ,!0*1 !4 C S ./ *!>2.**4
6/4.23 <0. !.-/0;1 <*! *0.*41*1 ,/(-*(.&!4
70(7/3*3 /(.2*! /<K*-. /, -&((5!4> /0.
.2*!(7(/7*(10.!*3 .2*! -*4303 &41 .2*!
3/;*64 70(!,!-&./43 # .2&.-/4F
-;01*1 !. .2*5 2&1 .2*! 7/A*(/, 3066/4F
!4> .2*! 7*/7;*! ./ .2*! &6703 &(.!03
A2*(*3!4-*! C C ' (.2*5 2&1 &4 /,,!-!&;
(*3!1*4-*! !4 .2*! = , 2*! .(!F
<04*3 2&1 4/ (!>2./, &3 &>&!43. .,!*!(
7(/-**1!4>3 !4 .&D!4> .2*! *43.!# !41**1

" ! *-*4303 A&3 /(!>!4&;;5 .&D*4 <5 .2* D!4>3" &,.*(.2* *070;3!/4 /,.2* D!4>3 <5 .2* -/430;3" &,.*(CCC ' (<5 37*-!&;/,! -*(3-&;;*1 " # " 2* -*43/(3 . /D .2* &037!-*3 /4 .2* 4!>2. 7(*-*1!4>.2* -*4303" /4 .2* 4*0.1&5.2*!(2*(&;1 306 6 /4*1 .2* 7*/7;* ./ .2*" &6703 2;&(.!03 A2*(*.2*5 2&1 &4 /E2-!&;(*3!1*4-* !4 .2* &-2 .(!<* &77*&(*1 30--*33!=*;5 <*,/(* .2* 6 &41 !.3 -!.!Q*43 A*(* 306 6 /4*1 !41!=!10&;5 &--/(1!4> .- .2* *0!3.!4> (*>!3.*(&-2 2&1 ./ 3.&.* -4 /&.2 2!3 &>*B 2! /A4 4&6*.2/3* /, 2!3 ,&.2*(2!3 A!,* 2!3 -2!;1(*4 2!3 &</1* &41 .2* &6/04./,2!3 7(/7*(.5 2* ,&-.3 A*(* *6</1!*1 !4 ;!3.3 <5 .2* -*43/(3 &33!3.&4.3 2* -*4303 /, .2* 7(/=!4-*3 A&3 3*4. !4 <5 .2* 7(/=!4-!&; >/=*(4/(3 2*(* A&3 & G 37*-!&;-/6 6!33!/4 ,/(40 6<*(!4> .2* &(6!*3 /0.3!1* .2* .&;!&4 ,(/4.!*(2* -*43/(3 !4 70..!4> 07 .2* 4*A ;!3.3 .//D !4./ -/4" 3!1*(&.!/0 4/. /4;5 & 6&4 3 7(/7*(.5 <0. 2!3 6/(&; -/410-. # " 5 ' 7 ! ! &9 2* -*4303 A&3 -/4-;01*1 A!.2 .2* 3/;*64 -*(*6/45/,(*=!*A!4> .2* 4*A;5 -/43.!.0.*1 &(65 # # 73 ^ g 2* (*F 70<;!-&4 -*4303 -/4.!40*1 ./ *0!3. 041*(.2* *&(;5 67!(* <0. .2* ;&3. A&3 2*;1 <5 *37&3!&4 &41 !.03 !4 UC 2* 7(/=!4-!&; -*4303 !4.(/10-*1 <5 0>03.03 &41 6&!4.&!4*1 10(!4> .2* A2/;* !67*(!&; 7*(!/1 2&1 4/.2!4>./ 1/ A!.2 .2* /6&4 -*4303 <*!4> /4;5 & 6*&43 /, &3-*(.&!4!4> .2* .&0&<;* -&7&-!.!*3 /, .2* 7(/=!4-*3 *4.&0(!8 (*4,& (/ 9 /6*(&41 .2* /;1*(65.2/;/>5 (*7(*3*4. .2* *4.&0(3 &(* & (01* A!;1 (&-* .*41 /, A!4* &41 A/6*4a 1A*;;!4> !4 .2* 6/04.&!43 /, 2*33&;5 *3F 7*-!&;;5 /4 *;! 4 &41 8 .& 4 /6*(.2*5 (* 37/D*4 /, &3 32&>>5 &4!6&;3 ;!=!4> !4 .2* 6/04.&!43 .A&3 7*(2&73 4/. 04.!; .2* V.2 -*4.0(5 .2&. .2*5 A*(* (*7(*3*4.*1 !4 .2* 1/0<;* 32&7* 4/A ,&6!;!&(./ 03 (!>!4&;;5 .2* *4.&0(A&3 -/4-*!=*1 &3 & <*!4> A!.2 .2* </15 /, & 6&4 3.&41!4> /4 & 2/(3* 3 ;*>3" <0. !4 ;&.*(.!6*3 .2* 206&4 </15 A&3 (*7(*3*4.*1 &3 (!3!4> 07 !4 .2* ,(/4./,& 2/(3* 3 </15 &41 ,/0(;*>3 # -0. --/(1!4> ./ /4* =*(3!/4 /, .2* -0((*4. ;*>*41 .2*5 A*(* .2* /,,37(!4> /, >72 ;* &41 0!/4 &--/(1!4> ./ &4/.2*(.2* 3/4 /, .2!3 7&!(*4.&0(3 <*>&. .2* 6 07/4 6&(*3 #] g 2* 3./(5 /, .2*!(-/4.*3. A!.2 .2* &7!.23* &. .2* A*11!4> /, !(;.2 .!3 < /6 /, .2*!(1(04D*44*33 &41 ;03. !3 &3 *&(;5 &3 /6*(f ;!&1 ! @?R 1533*5 00! @TV ,/!; g #) 4 /6*(*3./(&41 !4 .2* ;&.*(3./(5 2*3*03 &(* (*7(*3*4.*1 &3 .&D!4> 7&(.!4 !. .2 A&3 &,&=/0(!.* 3..<*/. A!.2 7/*.3" &41 &(.!3.3 2* *4.&0(3 A*(* 1(!=*4 ,(/6 *;!/4 <5 !(!.2/03 &41 .2* &7!.2&* &41 *=*4 .2* A!3* 2!(/4 A&3 ,/(-*1 ./ >-

']4'
X &(!3 !?/+(* 9

A!.2 .2*6 # " ?5 (.!3.3 A*(* &;A&53 ,/41/,.(*&.!4>.2* ,&<0;/03-/6<&.3" /,.2* *4.&0(3 &41 .2* 2*(/*3/,;1" <0. !4 ;&.*(.!6*3 .2* *4.&0(3 &77*&(!4 & 1!,,*(*4. ;!>2. 2*5 ,/(6 7&(./,.2* ,/;;/A!4>/, !/45303 6/=!4> 7*&-*&<;5 !4 2!3 ,*3.&;.(&!4 &6/4> 3&.5(3 4 (6723 &41 &--2&4.3 1(&A!4> .2*=!-./(!/03-&(/,.2* >/1 &41 2!3 :0**4 (!&14* 7;&5!4>/7 .2* ;5(* &41 >0!1*1 <5 >/13 /, ;/=* 2* ,/(63 /, A/6*4 &41 -2!;1(*4 A*(* 3/6*F .!6*3 (*7(*3*4.*1 !4 .2* 32&7* /, *4.&0(3 &41 03*1 !4'=&(!/03 A&53 <5 &(.!3.3 ,/(.2*!(36&;;*(7!-.0(*3 /(.2* $ " 2+ " /(' ((" 8H !32" *4.&0(31 9

4./ (/7(;5 &7&.-2A/(D >&(6*4. 4 !.3 3*-/41&(5 6*&4!4> .2* A/(1 A&3 &77;!*1 ./ &7/*6 -/67/3*1 /, =*(3*3 /(7&(.3 /, =*(3*3 <5 A*;;"D4/A4 7/*.3 70. />*.2*(&. 7;*&30(*3/ &3 ./ 6&D*& 4*A 6*&4!4> /6*(&41 *(>!;A*(* -2!*,;5 03*1 ,/(.2* 70(7/3* 2* 2(!3.!&43 *(* ,/41/,6&D!4> (*;!>!/03 7/*63 !4 .2!3 A&5 2/7!4> .203 ./ >!=*& 4/<;*(-/;/0(!4> ./ .2* 7&>&4 7/*.(5 /(!43.&4-*A* 2&=*& 6/*(!- " /,/@ C =*(3*3 /4 .2* !,* /, 2(!3. &3-(!<*1 ./ .2*4&!3 A2 B 041*(.2* .!.;* /, 01 -!& A&3 -/43/(./,.2*

67(/(' 2*/1/3!03' ' 4/.2*(' !43.&4-*' !3' &' 7/*6' D4/A4' &3' .2*' $(' " ' /(' H' .2*' 30,,*(!4>' 2(!3. I' -/43!3.!4>' /,' @ ?$N' =*(3*3' ,(/6' 0(!7!1*3' 43.&4-*3' /,' *(>!;!&4' -*4./3' &(*' .2*' 3&-(*1' 2!3./(5' /,' (/<&' &;./4;&' 8./A&(13' .2*' *41' /,' .2*' C.2' -*4.0(5' 9' &41' &' .(&>*15' *4.!.;*1' & ' <5' /3!1!03' *.&

4.06=!(!'8H' +(' ' # 'I9' 2!3' A&3' .2' .!.;*' /,' .2*' 3!4>;*'K0(5',/(' .2*' .(!&;' /,' -!=!;' -&03*3' &.' /6*' 4' .2*' (*70<;!-&4' &>*' !.' -/43!3.*1',' $NV' 6*6<*(3'-2/3*4',(/6' .2*' .(!<*3'8.2(**',(/6'*&-2',' .2*' .2!(.5",!=*9' 41*(' .2*' 67!(*' !.3' 406<*(' A&3' !4-(*&3*1' ./' $RN' .' A&3' 1!=!1*1' !4./' ,/0(' 3*-.!/43' ." 1$ &41' *0*(-!3*1' !.3' K0(!31!-./!4' !4' .2*' 4&6*' /,' .2*' 7*/7;*' 7&(.;5' !4' 3*-.!/43' 7&(.;5'&3'&'3!4>;*' " # ' .'2&1' ./' 1*&;' A!.2' :0*3.!/43' /,' 7(/7*(.5' &41' 7&(.!-0F ;&(;5' A!.2' .2/3*' /,' !42*(!.&4-*' 4' .2*' ;&.*(' 5*&('3'/,' .2*' *70<;!-' !.' A&3' 7(*3!1*1' /=*(' <5' 6*4' /,' :03*3./(!&4' (&4D' <0.',(/6' .2*' .!6*' /,' 0>03.03' <5' &' -/66!33!/4' /,' .*4' 9 " ' ' ! ' " 1' 2*' 7;*&1!4>3' A*(*' /(&;' &41' .2*' 7(/-**1!4>3' 70<;!-' 4' *&(;!*(' .!6*3' .2*5' .//D' 7;&-*' !4' .2*' ,/(06' 041*(' .2*' 67!(*' !4' &' ! C " ' 4' .2*' !67*(!&;' &>*' .2*' -*4.06=!(&;' -/0(.3' A*(*' .2*' /4;5' 372*(*' !4' A2!-2' &4' &6<!.!/03' /(&./(' /(' ;&A5*(' -/0;1' A!4' 1!3F .!4-.!/4' 2*' ;&3.' 6*4.!/4' /,' .2*6' !3' !4' TV' ' 2*' 7*-0;!&(' 356</;' /,' .2*' -*4F .06=!(&;' -/0(.' A&3' &' ' /(' 37*&(' 9 ' /

*4.,.(;&'8H'&'2041(*1'I9' 4' .2*' /6&4' &(65' /,' .2*' (*>&;' 7*(!/1' .2*' " ' A&3' &' 1!=!3!/4' /,' $NN' -&=&;(5'3/;1!*(3' 4' .2*' 2&;,"6!;!.&(5'-/43.!.0.!/4' /,' *(=!03' 0;;!03' .2*' A/(1' A&3' &77;!*1' ./' /4*' /,' .2*' $T' 1!=!3!/43' !4./' A2!-2' .2*' D!4>' 1!=!1*1' .2*' 7&.(!-!&4' &41' 7;*<*!&4' ! ' &--/(1!4>' ./' .2*!(' 7(/7*(.5' A!.2' .2*' =!*A' /,' &;;/..!4>' ./' *&-2' -!.!Q*4' 2!3' 10*' 32&(*' /,' -!=!;' (!>2.3' &41' 10.!*3' ,' .2*' $T' " ' $R' -/4F 3!3.*1' /,' -&=&;(5'3/;1!*(3' #' *&-29' <*;/4>F !4>' ./' .2*' (!-2*3.'-;&33' /,' -!.!Q*43' 2*'4*0.' $UN' A'2/3*' 6*6<*(3'A*(*'./'3*(=*'&3'!4,&4.(5' ,*;;' !4./',!=*' -;&33*3' 2*',!(3.' RN' !4-;01*1' .2/3*' -!.!Q*43' A2/3*' 7(/7*(.5'&6/04.*1' ./' &.' ;*&3.' $NN NNN' " ' 2*' 3*-/41' .2!(1' &41' ,/0(.2' -/4.&!4!4>' *&-2' ! ' -*4.0(!*3' (*7(*3*4.*1'&'6!4!606'7(/7*(.5'/,' UV NNN VN NNN' &41' @V NNN' ' (*37*-.!=*;5' 2*' ,!,.2' A!.2' N' -*4.0(!*3' (*7(*3*4.*1'&'6!4!F 606' /,' $@ VNN' $$ NNN' /(' $N NNN' ' 2*3*' $UN' -*4.0(!3*' A*(*' &>&!4'1!=!1*1'!4./' RV' -*4.0(!*3',' $/(' 6*4',(/6' $R"CV' 5*&(3'/,'&>*' A2/' 3*(=*1' !4' .2*',!*;1' &41' RV',' $-!.!Q*43',(/6'C?' ./' ?N' 5*&(3 /,' &>*' A2/' 3*(=*1' /4' >&((!3/4' 10.5' !4' .2*' -!.5' *3!1*3' .2*3*' .2*(*' A*(*@' -*4.0(!*3' /,' 6*-2&4!-3' 9 ! # 1$ &41' !' /,' 603!-!&43' 9" " # $ &41' ! " # 1

2*' " " ' ! # ' A*(*' *4(/;;*1' <*F .A**4'.2*',!(3.'&41'3*-/41'-;&33' .2*' " " # ' &41' ! " # ' <*.A**4' .2*' ,/0(.2' &41',!,.2' 2*' $T 1' " ' -/4" 3!3.*1' /,' -!.!Q*43' A2/3*' !4-/6*' ,*;;' <*;/A' .2*' 6!4!606'3.&41&(1'/,' .2*' (*3.' &41' A2/' A*(*' -&;;*1' ' /(' " ' " ' 2*3*' ;&3.'2&1'/(!>!4&;;5'4/',04-.!/4'<*5/41' .2&.' /,' =/.!4>' &.' .2*' &33*6<;5' /,' .2*' -!.!Q*43' !4' .2*' " # ' " $ &41' A*(*' 4/.' ;!&<;*' ./' 6!;!.&(5'3*(=!-*' 0.' !4' ;&.*(' .!6*3' .2*' (!-2*(' &6/4>' .2*6' A*(*' &16!..*1' ./' 3*(=*' !4' .2*' &(65' ' ,(*32' 1!=!3!/4' /,' " " ' A&3' 6&1*' &.' *=*(5'-*4303' 2*' 6!;!.&(5' *:0!76*4.' /,' *&-2' -!.!Q*4' &41' 2!3' 7/3!.!/4' !4' <&..;*' &((&5' A&3' 1*.*(6!4*1' <5' .2*' -;&33' ./' A2!-2' 2!3' 7(/7*(.5'*4.!.;*1' 2!6' ./' <*;/4>' 9 ' # ' 4' .2*' 7/;!F .!-&;' 7/3!.!/4' /,' .2*' 1!,,*(*4.' -;&33*3' ' 8@9

4' 6!;!.&(5'7&(;&4-*' " ' 6*&4.' /4*' /,' .2*' ?N' 1!=!3!/43' /,' .2*' ;*>!/4' *&-2' /,' A2!-2' A&3' -/66&41*1' <5' &' "

*4.0(!&.&' /6;.;&' '@ & ' .I *4.,!(!/4*3' 2*' -&7.&!43' /,' .2*' ?N' -*4F .0(!*3' /,' .2*' /6&4';*>!/4' 2*5' -&((!*1'&3.&,,' /,' =!4*A//1' &3' .2*!(' <&1>*' /,' /,,!-*' 4' .2*' (*70<;!-&4' &>*' .2*5' A*(*' &77/!4.*1' /4' .2*' &77;!-&.!/4' /,' .2*' ;*>!/4' <5' .2*' 6!;!.&(5'.(!<04*3' 24' .2*' -/66!33!/4' /,' .2*' -/430;3' 2*(*'A*(*'=&(!/03'1*>(**3/,'(&4D' &6/4>' .2*' -*4.0(!/43'&--/(1!4>'&3' .2*5' <*F ;/4>*1' ./' .2*' .2(*' 1!=!3!/43' /,' .2*' $ " $ &41' $ &41' ;*1' .2*' ,!(3.' /(' 3*-/41' ' /,' /4*' /,' .2*' N' # .2*' -*4.0(!/4' /,' .2*' ,!(3.' " ' /,' & # ';*1' 2!3' # ' 2!63*;,' &41' &3' " ' '(&4D*1'&</=*' .2*';*&1*(' /,' .2*' 3*-/41' " $' # ' " ' ' .2*' 2!>2*3.'(&4D'<*;/4>*1' ./' .2*' ,!(3.' " ' /,' .2*' ,!(3.' # ' /,' .2*' $ .2*' # ' /(' # ' $ A2/' A&3' &16!..*1' ./' .2*' -/04-!;' /,' A&(' 2*' 6*.2/1' /,' 7(/6/.!/4' A&3' &3' ,/;;/A3' 2*' " 6 ' 2&1' ./' A/(D',!(3.'.2(/0>2' .2*' N' ;/A*(' " ' /,' .2*' N' # ' /,' .2*' $ " $ &41' $ &41' .2*4' .2(/0>2' .2*' N' 077*(' " " ' 07' ./' .2*' # ,.*(' .2*' *41' /,' .2*' *70<;!-' &41' 041*(' .2*' 67!(*' .2*' ;*>!/4' A&3' 030&;;5'1!=!1*1' !4./' -/2/(.3'(&4D*1'/4*'&</=*' .2*' /.2*(' *&-2' -/2/(.' -/43!3.!4>' /,' .2(*' # ' /(' 3!0' " " ' 2*' 1!=!3!/4' !4./' ' &41' $ &41' !4./' $' "

&41 (3.!;; (*6&!4*1 <0. /4;5 ,/(.2* -*4.0(!/43 &41 A!.<!4 .2* -/2/(. A2!-2 &--/(1!4>;5 &;A&53 !4-;01*1 & &41 /, .2* .2(** (&4D3 !4 :0*3.!/4 2* 6*.2/1 /, 7(/6/.!/4 A2!-2 A&3 7*(F 2&73 4/. (*>0;&(;5 ,!0*1 04.!; .<* .!6* /, .2* 3.&41!4> &(6!*3 /, .2* 67!(* 3**63 ./ 2&=* <**4 .2* /;1/4* .2* -*4.0(!/43 7&33!4> 07 <5 &; /A*(3.&>* .2(/0>2 &;; -/2/(.3 &41 .2* 2!>2*(3.&>* &;A&53 <*>!44!4> !4 .2* .*4.2 2* ,!(3. -*4.0(!/4 /, *&-2 -/2/(.7(/<&<;5 ;*1 !. &41 A&3 &16!..*1 ./ .2* -/04-!; /, A&(2* 7(/6/.!/4 030&;;5 -*&3*1 A!.2 .2* &1=&4-*6*4. ./ .2* (&4D /, , &-*4.0(!/4 A2/ 2&1 (*&-2*1 .2!3 7/!4. 1!1 4/. -2//3* ./ (*.!(* 2* &3 *67;/5*1 /4 37*-!&; 3*(=!-*3 &3 -/66&41&4. /, & ,/(.(*33 ,/(!43.&4-* 41*(.2* 67!(* 2/A*=*(*0-*7.!/4&; -&3*3 /--0((*1 /, 7(/6/.!/4 ./ 2!>2*(7/3.3

72 38 (4 (**D 65.2/F ;/>5 .2* 3/4 /, *(6*3 &41 *(3` .2* 1&0>2F .*(/, Z-(/73 D!4> / , .2*43 --/(1!4>./ &4/.2*(3./(5 2* A&3 3/4 /, *!V4 / , 2/-!3 &41 ! 6*1* &41 6!>(&.*1 ,(/6 2/-!3 ./ 2 (!-03 !4 ..!-& * A&3 6&((!*1 ./ (/-(!3 .2* 1&0>2.*(/, (*-2.2*03 &41 ;!=*1 A!.2 2*(!4 .2* -;/3*3. &,,*-.!/4 0. A2!;* 204.!4> /4* 1&5 !4 .2* 6/!!4.&!43 2* A&3 -&((!*1 &A&5 ,/(2!3 <*&0.5 <5 /3 .2* >/11*33 /, .2* 1&A4 /*3.(&4>* 2!3 A!,* 3 2*&(. ,(/6 2!6 /3 3*4. 2!6 ./ 2*(!4 .2* ,/(6 /, & 3.(&4>*(A2/ <5 .2* /,,*(/, 37;*41!1 7(*3*4.3 30--**1*1 !4 6&D!4> 2*(A&=*(!4 2*(,!1*;!.5 *72&;03 (*=*&;*1 2!63*;, &41 (/-(!3 !4 3 &6* ,;*1 ./ (*.* A2*(* 32* ;!=*1 A!.2 (. 6!3 &3 &204.(*33 (.*6!3 8/(&--/(1!4> ./ &4/.2*(3./(5 !4/39 >&=* 2*(&1/> &3 A!, &3 .2* A!41 &41 &37*&(.2&.4*=*(6!33*1 !.3 &!6 4 (*.0(4!4> ./ ..!-& 32* 6*. *72&;03 204.F !4> * ,&!;*1 ./ (*-/>4!3* 2*(&41 /,,*(*1 2!3 ;/=* !, 32* A/0;1 >!=* 2!6 2*(1/> &41 2*(37*&(2* .2*4 (*=*&;*1 2*(3*;, &41 .2* <&;&4-* /, /,,*4-* <*!4> .203 (*1(*33*1 .2* ;/=*(3 A*(* (*-/4-!;*1 &41 (*.0(4*1 ./ .2*!(/;1 2&775 ;!, * ./>*.2*(0 (/-(!3 &.;&3. ,*;;& =!-.!6 ./ 2*(K*&;/0B 2*4 *72&;03 A*4. /0. 204.!4> 2* 03*1 /,.*4 ./ -&;; /4 (.2* <(**Q* ./ -//;2!3 2*&. (/-(!3 : .//;1 /, .2!3 &41 307F 7/3!4> ./ <* 3/6* 456 72 2!1 2*(3*;, !4 &.2!-D*. ./ A&.-2 2!6 *&(!4> &(03.;!4> 4*&(2!6 &41 .2!4D!4> & A!;1 <*&3. A&3 !4 .2* .2!-D*. *72&;03 .//D &!6 A!.2 .2* 04*((!4> 37*&(A2!-2 (/-(!3 2&1 >!=*4 2!6 &41 3;*A 2!3 A!,* /(.2!3 60(1*(2* A&3 <&4!32*1 &41 ,;*1 ./ /*/.!& *(* 2* &33!3.*1 6 72!.(5/4 !4 .2* -2&3* /, .2* &46*33!&4 ,/ &61 </.2 <!3 1/> &41 .2* 204.*1 &4!6&; A*(* .0(4*1 ./ 3./4* <5 L*03 0<3*:0*4.;5 2* K/!4*1 6 72!F .(5/4 !4 2!3 *07*1!.!/4&>&!43. .2* *;"<"&* &41 &--/(1!4> ./ /4* &--/04. <*-&6* 3/=*(*!>4 /, .2* *72&;:*4!&43 --/(1!4> ./ &4/.2*(2* 70. &4 *41 ./ 2!3 ;!, * <5 ;*&7F !4> ,(/6 .2* 7(/6/4./(5 /,]!*0-&.* 4 A2!-2 2* 2&1 ,/041*1 &.*67;* ./ 7/;;/ *72*03 8 ((8$9 2* 3/4 /, ;03 D!4> / , .2!/7!&203<&!.,; / , &33!/" 7 &&41 ,&.2*(/, 41(16 & & & 8@9 /4 /, . 43 D!4> /," "> &&41 <(/F .2*(/, .!>* # / * ,*;; A!.2 <!3 .A*4.5 3/43 A2*4 ,!>2.!4> /4 .2* 3!1* /, *(1-; 3 &>&!43. !77"-"/4/, 7&(.& *72;321J.43 8 ((/ / / (**D &(.!3. </(4 &. .2*43 &41 -/44*-.*1 A!.2 .2*, &6!;5 /, (&0!. ;*3 *, ;/0(!32*1 ./A&(13 .2* *41 /, .2* C.2 -*4.0(5 -2* -*;*<(&.*1 3.&.0* 4/A!4 .2* ;57./.<*D &. 04!-2 (*7(*3*4.!4> !(*4 A!.2 .2* !4,&4. ;4.03 !4 <*(&(63 !3 7(/<&<;5 &/-/75 /, & A/(D <5 *7<!3/1/.03 # -0. 041*(? 2*(* A&3 &4/.2*(*72!* 3/1/.03 &-/4.*67/(&(5 /, 2!3 &41 .2* 3/4 /, (&0!.*;*3 A2/ A&3 ;!D*A!3* !4 2!>2 (*70.* &3 &3-0;7./(

*(8 (4 (**D 65.2/;/>5 &/>/11*33 /, 1*&.2 *37*-!&;;5 / , =!/;*4.1*&.2 !4 <&..;* 4 *3!/1 32* !3 .2* 1&0>2.*(/, 50 84!>2.9 &41 3!3.*(/, 1(/3 8.2* 1//6 /, 1*&.29 574/383;**79 &41 (* 63 2* 7/*.3 /66/4;5 37*&D /, 3*=*(&;* ^ (3 >/11*33*3 /, 1!,,*(*4.D!413 /, 1*&.2 /6*(&41 *3!/1 (*7(*3*4. .2*6 &3 -;/.2*1 !4 >&(6*4.3 3.&!4*1 <5 206&4 <;//1 &41 1(&>F >!4> .2* 1*&1 &41 A/041*1 &</0. /4 .2* ,!*;1 /, <&..;* =*(5 6&4 2&3 2!3 &;;/..*1 //6 A2!-2 /=*(.&D*3 2!6 &. .2* &77!4.*1 .!6* -2!;;*3 &;/4* 2&3 .A/ A!.2 .2* 7/A*(./ -2//3* ,(**;5 <*.A**4 .2*6 4 ;&.*(.!6*3 .2* G^*(*3 &(* (*7(*3*4.*1 >*4*(&;;5 &3 7/A*(3 /, 1*3.(0-.!/4 &41 &3 &33/-!&.*1 A!.2 .2* (;45>3 >/11*33*3 /, (*=*4>* &41 (*.(!<0.!/4

(<(038 (,*("B(1&9 4 (**D 65.2/F ;/>5 .2* .2(**"2*&1*1 1/> A!.2 2&!(/, 34&D*3 3/4 /, 572&/4 &41 -2!14& A2/ A&.-2*3 .2* *4.(&4-* /, .2* ;/A*(A/(;1 *>!=*3 &,(!*41;5*>(**.!4>./.!& *A2/ *4.*(<0.!,&45 /4* &..*67.3 .!>/ /0.2* 3*!Q*3 2!6 &41 2/;13 2!6 ,&3. 2*4 *(-; 3 &. .2* -/66&41 /, 4(3.2*03 <(/0>2. 2!6 ,(/6 <*;/A ./ .2* 077*(A/(;1 .2* 7/!3/4F /03 &-/4!.* 37(&4> 07 ,(/6 .2* ,/&6 /, 2!3 6/4.2 # (((/ *(-!3 8 (

*(-5/4'8 (' : " ' 4' (**D' 6 5.2/F $ ' ' $ ' ' ' ' % ' ' ' '

'"&41' .//D' .2*!(' 6*&;3' &.' .2*' 70<;!-' *07*43*'
%A!.2' .2*' /,,!-!&;3' ./' A2/6' .2*5' A*(*' &.F
.&-2*1' 4' .2*' 2*(&;13' 3.&,,' 8 ;(' DD:2
(/"' &.'
8@9' 4' (**D' 65.2/;/>5B' .2*' 3/4' /,'
*(6*3' .2*'2*(&;1' /,'.2*'>/13'<5' >(&0;/3'
.2*' 1&0>2.*(' /,' *-(/73' /,' 8&--/(1!4>' ./'
&4/.2*('3./(59' /,' 06/;703' &41' &4-*3./(' /,'
.2*' ;*03!4!&4' ,&6!;5' /,' .2*' *(5D>3' /4*'
G/,' A2/3*' 6*6<*(3' &;A&53' 7*(,/(6*1' .2*'
,04-.!/43' /,' &' </(&;1' &.' .2*' ;*03!4!&4'
653.*(!*3
.(&' 2' ;!>2.' 32!*;1' /,' .2*' /6&4'
'&40!;!&(!*3' # '$
*50'.@ ' : ! ' 4' (**D' 65.2/;/>5'8 9'
'D!4>' /,' (&-2!3' .2*' ,(!*41' &41' 4*72*A'
G/,' *(-;"3' # '
8@9' 2*' 3/4' /,' * 372 (3' /(' .2*' /(4F
!4>" .&(' &41' .2*' 45672' 2;;/4!3'" .2*'
203<&41' /,' ;;B 4*' /(' &;DB4*' 1&0>2.*('
'/,' .2*' 2*33&;!&4')?$03' B *' 7&!(' A*(*'
&((/>&4.' *4/0>2' ./' 3.5;*' .2*63*;=*3' L*03'
&41' *(&' &41' A*(*' &--/(1!4>;5' -2&4>*1'
(*37*-.!=*;5' <5' L*43' !4./' .2*' <!(13' /,' .2*'
3&6*' 4&6*' &' 1!=*(' &41' &' D!4>,!32*('
4/.2*('3./(5'-/4,03*1' *50'A!.2' .2*' D!4>'
G/,' (&-2!3' &41' 1A*;.' /4' .2*' .*41*(';/=*' /,'
.2*' 7&!(' ,/(' *&-2' /.2*(' *50' !3' 1(/A4*1'
&.' 3*&' &41' ;-5/4*' ,!413' 2!3' </15'-&3.' 07'
07/4' 2!3' 4&.!=*' 32/(*' 2*' >/13' .&D*' 7!.5'
/4' 2*(' >(!*,' &41' -2&4>*' .2*' 203<&41' &41'
A!,*' !4./'D!4>,!32*(3'# : " 'A2/3*'&,,*-F
.!/4',/(' *&-2' /.2*(' !4' .2*' 7&!(!4>' 3*&3/4'A&3'
7(/=*(<!&;' L*43' /(' &--/(1!4>' ./' &4/.2*('
"3./(5'.2*'GA!41'>/1';' <;03'83/6*.!6*3'(*7(*F
3*4.*1' &3' .2*' ,&.2*(' /,' ;-5/4*9' <!13' .2*'
A!413' (*3.',/(' 3*=*4' 1&53' <*,/(*' &41' &,.*('
d.2*'32/(.*3.'1&5'./' &;;/A' .2*' D!4>,!32*(3'./'
'3!.' /4' .2*!(' *>>3' <5' .2*' 3*&' *4-*' .2*'
%*07(*33!/4' H' 2&;-5/4' 1&53 I' &77;!*1' ./' .2!3'
(*&3/4' &&1&!! 4' .2*' <(/.2*(' /,' *50'
A&3' .0(4*1' !4./' &' 2&AD' A2*4' 2*' .2(*A'
2!63*;,' ,(/6' &' (/-D' /4' &(4&3303' !4' >(!*,'
.' .2' 1*&.2' /,' 2!3' 1&0>2.*(' 2; 4*
2&;-03'8 (' $(
2&;16!' ' A:5@
$$&!' --/(1!4>' ./' *3!/1' .2*' 5&A4"
!4>'04,&.2/6&<;*' &<533' A2!-2'A&3'.2*',!(3.'
G/,' &;;' *0!3.!4>' .2!4>3' (/6' 2&/3' &(/3*'
&!&' 8 &(.29' &(.&(03' 8 * 9' &41' (V3'
8 /=*9' 2&/3' </(*' (<03' &41' !>2."
,(/6' .2*!(' 04!/4'37(&4>'! ('&41'
8 D5' &41' &59' 2*' -/4/*7.!/4' /,' 2&/3'
"&3' .2*' -/4,03*1' 6&33' /0.' /,' A2!-2' !4' .2*'
<*>!44!4>' .2*' 3*7&(&.*' ,/(63' /,' .2!4>3'
&(/3*' !3' *((/4*/03' &41' <*;/4>3' ./' &' ;&.*('
7*(!/1
23*(614' ' < **D' .(&>*1!&4' A2/'
,;/0(!32*1' &.' .2*43' &</0.' RN' ' !3
3.5;*' A&3' 36//.2' &41' 7!-.0(*3:0*'<0.' 2!3'
7;&53' A*(*' &(.!,!-!&;' &41' <*..*(' &1&7.*1',/('
(*&1!4>'.2&4',/('7*(,/(6&4-*' ',*A',(&>F
6*4.3' /,' .2*6' (*6&!4' A2!-2' 32/A' 3/6*'
!4B!4&.!=*'7/A*(
,,!&!(3' &41' *&.3' ,' .2*3*' .2*(*' A&3'
&' >(*&.' =&(!*.5' !4' .2*' &4-!*4.' A/(;1' 3/6*'
A!.2' &41' 3/6*' A!.2/0.' 3077/(.3',/(' .2*'
2*&1' &41' <&-D' 2*' ;&..*(' 3/(.' 8 ('
(' &.' ' A*(*' 6/3.;5';/A' &41

'/&'* ! '
8 (/6' ,(**D' &3*39

8L*O3' /!4'/,' ;!39

A*(*'3077/(.*1'3/6*.!6*3'/4' ,/0(' 07(!>2.'
;*>3'3/6*.!6*3'/4',**.'&((&4>*1'&41'32&7*1'
;!D*' &' 3&A!4>' 3.//;' # ' -0.39' 2*' 3*&.'
<*!4>'6&1*'/,';*&.2*('3.(&73'.2*'-2&!('-/0;1'
!4'.2*';&..*('-&3*'<*',/;1*1'07' &41' -&((!*1'
<5'&'3*(=&4.' '-2&!(' /,'.2!3'D!41'6&1*'/,'
!=/(5'A&3'/4*'/,'.2*' 1" '/,'.2*'-0(0;*'
6&>!3.(&.*3'&.' /6*# '$ ' 0.!9'
2*' /,,!-!&;' -2&!(' /,' .2*' /6&4' 6&>!3F
.(&.*3' A&3' &;A&53' A!.2/0.' &' <&-D' .//;3

A!.2/0.' <&-D3' A*(*' &;3/' 03*1' <5' 6*-2&4!-3' 3/;1!*(3' &41' </53' &.' 3-2/!;' 2*' <&-D*1' -2&!(3' /(1!4&(!;5' !4' 03*' 60-2' (*3*6<;*1' /0(' 6/1*(4' -2&!(3' 2*5' >*4*(&;;5' 2&1' &' 3;/7F !4>' <&-D' 3/6*.!6*3' &(-2*1' /0.'!4' .2*' -*4.(*' &' -0.39' 2&!(3' /,' .2!3' ,/(6' A*(*' 6&1*' ,/(' A/6*4' &41' !4=&;!13" &41' .2*' (' /(' 7(/,*33/(3' -2&!(' A&3' /,' .2*' 3&6*' 1*3-(!7F .!/4' 2*' (**D' (" ' &41' .2*' &.!4' ' A*(*' 3*&.3' /,' 2/4/0(' 2*5' A*(*' ;/,.5' &41' 2&1',//.3./!;3' &--/(1!4>;5" .2*' <&-D' A&3' 2!>2' &41' 3.(&!>2.' .2*' ;*>3' A*(*' 07(!>2.' &41' .2*(*' A*(*' &(63' &.' .2*' 3!1*3' 2*' /6&4' ' A2*4' >!=!4>' 2!3' -;!*4.3' .2*!(' 6/(4!4>' &01!*4-*' 3&.' !4' &' " ' *&.3' A*(*' 4/.' &;A&53' 3.0,,*1' <0.'-032!/43' A*(*' 70.' /4' .2*6' &41' -/=*(F !4>3' /4' .2*' <&-D3' 2&!(3' A*(*' 6&1*' /,' 6*.&;' &41' !=/(5' &3' A*;;' &3' /,' A//1 2&(*3' 8$9' $(' ' : " ' (**D' 2!3./(!&4' -/0(."6&(32&;' /,' ;*0&41*(' .2*' (*&.' *' A&3' .2*' &0.2/(' /,' &' -/67(*2*43!=*' A/(D' -/4F .&!4!4>' &.' ;*&3.' .*4' </!D3' 07/4' .2*' ;!,*' -2!*,;5' .2*' 1/6*3.!-';!,*' /,' .2!3' 6/4&(-2' 2!3' 2!3./(5' 2&1' .2*' (*70F .&.!/4' /,' <*!4>' .(03.A/(.25' &41' !4F .*(*3.!4>' 4;5' &' ,*A' ,(&>;4*4.3' /,' !.' (*6&!4 8@9' $(' ' ; " ' "' 7(' (**D' &(.!3.' &' 707!;' /,' 53!7703 4' @UR' □ ' 2*' 7(/10-*1' .2*' ;&(>*3.' 3.&.0*' D4/A4' !4' &4.!:0!.5' .2*' -/;/3F 3&;' !6&>*' /,' .2*' 304' @RN' ,**.' 2!>2' 7;&-*1' &.' .2*' *4.(&4-*' /,' .2*' 2&(</0(' /,' 2/1*3' &41' >*4*(&;;5' D4/A4' &3' .2*' /;/3303' /,' 2/1*3' 2!3' A&3' 1*3.(/5*1' <5' &4' *&(.2:0&D*' &3' *&(;5' &3' @@@' □ ' 2*' .206<3' A*(*' .2!-D*(' .2&4' .2*' &=*(&>*' 37&4' /,' &' 6&43' 2&41' .2*' 4>*(3';&(>*(' .2&4' 6&45' /(1!4&(5' 3.&.0*3 2&(!/.3' 8$9' 6 ' 2*' (&-!4>' -2&(!/.3' !4' 03*' &.' .2*' 70<;!-'>&6*3' (*:0!(*' *37*-!&;' 6*4.!/4' 2*3*' 7(*3*(=*1' .2*' ,/(6' /,' .2*' A&("-2&(!/.3' /,' .2*' 2*(/!-' &>*' 6&1*' ./' -&((5' .2*' A&((!/(' &41' 2!3' ;A(!/.**(' & ' Y-0.9' 2*5' A*(*' &;3/' 03*1' &.' /6*' !4' .2*' >&6*3' /,' .2*' -!(-03' &41' !4' ,*3./;' 7(/-*33!/43' 2*' -2&(!/.' 2&1' .A/' ;/A' A2**;3' 030&;;5' A!.2',/0(' 37/D*3' *&-2' 4' .2*3*' (*3.*1' .2*' -&(' & ' -0.9' *;;!7.!-&;;5' 32&7*1' !4' ,(/4.' 7(/.*-.*1' <5' &' </&(1' (!3!4>' ./' .2*' D4**3' /,' .2*' 1(!=*(' !4' ,(/4.' &41' 3;/7!4>' /,;' ./' .2*' (*&(' A2*(*' .2*' -2&(!/.' A&3' /7*4' 4' .2*' .(!0672&;-2&(!/.' /,' .2*' /6&43' .2!3' </&(1' A&3' <(*&3.' 2!>2' .' .2*' *41' /,' .2*' 7/;*' A&3',&3.*4*1' .2*' 5/D*' 2!3' -/43!3.*1' *!.2*(' /,' &' 3!67;*' &(-2*1' 7!*-*' /,' A//1' /(' /,' .A/' (!4>3' -/!6*-.*1 <5' &' -(/33"<*&6' &41' A&3',!0*1' /4' .2*' 4*-D3' /,' .2*' .A/' 2/(3*3' /(' 60;*3' A2!-2' A*(*' 4*0.' ./' .2*' 7/;*' /6*.!6*3' &' .2!(1' &41',/0(.2' 2/(3*' A*(*' &..&-2*1' <5' 6*&43' /,' &' (/7*' 7&33!4>',(/6' .2*' 4*-D<&41' ./' &' (&!;' ,/(6 " !4>' .2*' ./7' /,' .2*' ,(/4.' </&(1' A&3' !41**1' .2*' 04!=*(3&;' -03./6' !4' &4.!:0!.5' ./' 6&D*' .2*' .A/' 7(!4-!7&;' 2/(3*3' 1(&A' <5' .2*' 5/D*' .' A&3' /4;5' .2*'*0.(&' 2/(3*3' .2&.' 1(*A' <5' .(&-*3' &41' .2!3' &;A&53' &.' .2*' 3!1*' /,' .2*' /.2*(3' 4*=*(' !4' ,(/4./,' .2*6' &((!&>*3" !4' /(1!4&(5' 03*' 3/6*.!6*3' 2&1' .A/' 3/6*' .!6*3' ,/0(' A2**;3' 2*5' A*(*' 03*1' 6/3.;5' ,/(' -&((5!4>' <0(1*43' 4;5' A/6*4' &3' &' (0;*' .(&=*;;*1' !4' &((!&>*3" 6*4' 030&;;5' *!.2*(' A&;D*1' /(' (/1*' .2!4D!4>' !.' &,,*-.&F .!/4' ./' 1(!=*' *0-*7.' !4' -&3*' /,' /;1' &>*' /(' !;;4*33' .' A&3' 2/A*=*(' -03./6&(5' &.' .2*43' &41' *;3*A2*(*' ,/(' &' <(!1*' ./' <*

G " +
8 &3*' 7&!4.!4>9

1(&A4'./' .2*' 2/03*' /,' .2*' <(!1*>(//6' !4' &' -&((!&>*' 1(&B(/' <5' 60;*3' /(' /0*4' 3!..!4>' <*.A**4'.2*' <(!1*>(//6' &41' 2!3',(!*41 8@9' 7 ' 6 4>' .2*' /6&43' A*',!41' &' >(*&.'=&(!*.5'/,' -&((!&>*3' !4' 03*' ,/(.(&43F 7/(.' .(&=*;;!4>' &41' 3.&.*' /--&3!/43' 2!3' =&(!*.5'!3' &77&(*4.' !4' .2*' 40 6<*(' /,' 1!,,*(F *4.' 4&6*3' A2!-2' -&44/.' 2/A*=*(' &;A&53' <*' (*,*((*1' A!.2' -*(.&!4.5'./' .2*' ,/(63' /,' -&((!&>*' 7(*3*4.*1' !4' A/(D3' /,' &(.' 2*' =&(!/03' D!413' /,' .(&=*;;!4>"-&((!&>*3' 603.' 2&=*' <**4' </(((/A*1' ,(/6' &<(/&1' &3' !3' 7(/=*1' <5' . 2*!(' 4&6*3' 2*' ' ,/(' !43.&4-*'-&6*' ,(/6' &0;' 2!3' A&3' &',/0(" A2**;*1' .(&=*;;!4>' -&((!&>*' ,/(' ,&6!;5' &41' <&>>&>*' /(' ,(' -/67&45' 2*' ' &41' ' A*(*' ;!>2.' .A/"A2**;*1' -/4=*5"' &4-*3' 2*' 'A&3' 7(/<&<;5' &' &0;!32' A&("-2&(!/.' &3' .2*' " " ' A&3' &' (!.!32' A&("-2&(!/.' 2*' ,/0("A2**;*1' " ' -&6*' &;3/' ,(/6' &0;' .' A&3' 1(&A4' <5

;0;*3 &41 >*4*(&;;5 03*1 <5 .2* 3*(=&4.3 41 30!.* 2* " @ &41 " " 03*1 /4 3.&.* /--&3!/43 2*3* A*(* /.2 -/=*(*1 -&((!&>*3 .2* " 2&=!4> !(A2**;3 .2* " " .A/ 2* " ! /,.*4 6*4.!/4*1!4 .2* ;!.*(&.0(* /,.2* 67!(* 2&1 ,/0(A2**;3 &41 (*3*6<;*1 & *6 03. &;3/ 6*4.!/4 .2* (" &2&(!/. &1/(4*1 A!.2 >/;1 &41 !=/(5 !4 (2!-2 .2* !6&>*3 /, .2* >/13 &41 1*!,!*1 .47*(/(3 ;5!4> 07/4 &-032!/4 /4 &, ,(&6* &;!..*(A*(* </(4* ./ .2* -!(-03 .2(/0>2 ;* 3.(**.3 &41 .2* /(06 &. .2* !(-*43!&4 &6*3 2* 03* /, -&((!&>*3 , /(.(&=*;;!4> 0(7/3*3 A&3 &;;/A*1 !4 /6&4 3/-!*.5 0. .2*(* A&3 *(5 ;!..;* 1(!=!4>!4 /6* '3*;, &((!*1 ;&1!*3 A*(* ,(/6 =*(5 /;1 !6*3 7*(6!..*1 .2* 03* /, " !4 .2* !.5 &41 ./ 1(!=* !4 " ./ 3&-(!,!-*3 41 >&6*3 2* 7(!=!;*>* A&3 3&!1 ./ &=* <**4 >(&4.*1 .2*6 !4 &-D4/A;*1>6*4. 2*!(-/4.(!<0.!/43 ./ .2* (&43/6 /, .2* !.5 &,.*(!. A&3<0(4.<5 .2* &0;3 * TN 0 CV - &*3&(,!4&;;5 (*3.(!-.*1 .2*!(7(!* !;*>* ./ .2* 70<;!- &-(!,!-*3 ./ =(2!-2 .2* <3.&; !(>!43 .2* 6&((!*1 ;&1!*3 &41 .2* " &;3/ 1(/=* !4 "

4 A(* 3.(!-.;5 ,/(<!11*4 ./ 1(!=* !4 ;* -!.5 "*0-*7. !4 .A/ -&3*3 >*4*(&; 2!3 .(!0 6 72 A&3 </(4* ./ .2* -!(-03 !4 &!;1*1 -2&(!/. 1(&A4 <5 ,/0(2/(3*3 &41 !4 ;* 7(/-*33!/4 A2!-2 7(*-*1*1 .2* >&6*3 /, ;* -!(-03 .2* 6&>!3.(&.*3 (/1* !4 -2&(!/.3 (&A4 <5 .A/ 2/(3*3 !0 2/(3*3 A*(* %6*.!6*3 &;;/A*1 ./ .2* *67*(/(2(/0>2 !. .2* -!.!*3 /, .2* *67!(* 1(!=!4> !4 A!* '(**.3 A&3 >*4*(&;;5 ,/(<!11*4 !4 .2* ,!(3. =/ -*4.0(!*3 &,.*(2(!3. .; ;*4>.2 !4 ;* (1 -*4.0(5 .2* 03* /, &-&((!&>* A&3 f;/A*1 &3 &7(!=!;*>* ./ .2* 3*4&./(3 &41 !>2 !67*(!&; /,,!-!&;3 A2/ (/1* !4 ;&.*1 A!.2 3!;=*(4 ;&.*(.!6*3 7(!=&.* .!Q*43 A*(* 7*(6!..*1 ./ 1(!=* !4 .2*3* 9&-2*3 &>/43 8.2* >*4*(&; 4&6* /, 2!-2 A&3 A*(* A!.2 -*(.&!4 *0 K7.!/43 ,/(<!11*4 <5 &;&A /, &*3&(./ ;5 <*.A**4 304(!3* &41 .2* .*4.2 2/0(8C !.2* &,.*(4//49 !4 =!*A /, .2* !66*43* G&,,!- !4 .2* .(**.3 /6* A&>/43 2&1 3/6* ,/0(A2**;3 2*5 A*(* >*4*(,;*5 A*(* 6*&4. ./ -&((5 =*(5 2*&=5 ;/&13 ;* A2**;3 A/0;1 <* 6&1* /, /4* 7!*-* &41 G!.2/0. 37/D*3

2 0!3!03 #A < A(!.*(&.!4 >(&6 6&(A2/ 4/0(!32*1 ./A&(13 ;* *41 /, .2* C.2 -6!.0(5 !3 D &A/(D !4 ,!=* </!D3 !6 7*(-.;5 7(*3*(=*1 !3 &-/6 7!;&.!/4 6&1* A!.2 /0. 60-2 !4.*;;!>*4-* ,(/6 .2* A/(D3 /, /;1*(3-2/;&(3 .3 =&;0* !3 1*(!=*1 ,(/6 .2* 406*(/03 :0/.&.!/43 !. 7(*3*(=*3 ,(/6 .2* /;1*(&.!4 ;!.*(&.0(*

2D(!.*3 /((&-*3 /11*33*3 /, >(&-* &41 /, *=*(5.2!4> A2!-2 ;*413 -2&(6 &41 <*&0.5 ./ 4&.0(* &41 206&4 ;!,* --/(1F !4> ./ *3!/1 .2*5 &(* .2* /,,37(!4> /, L*03 &41 .2* 1&0>2.*(7, -* 403 &41 0(54/6* 2*!(4&6*3 &(* 072(/354* 8K/59 2&;!&8<;//69 &41 >;D;&8<(!;;!&4-*9 >;&!& !3 .2* 5/04>B. Y61 .2* A!,* /, *72&*3.03 /(.2* !437!(&.!/4 /, .2* (&-*3 A&3 1**6*1 &Z 4*-*33&(5 ./ .2* 7;&3.!-* &(.3 &3 ./ 603!- 7/*.(5 3-!*4-* *;/:0*4-* <*&0.5 &41 *4K/56*4. /, ;!,* --/(1!4>;5 .2* (&-*3 &(* !4.!6&.* A!.2 .2* 03*3 A!.2 A2/6 .2*5 ;!=* />*.2*(/4 ;567!& 2*5 &(* &33/-!&.*1 .// A!.2 7/;;/ .2*4* *(6 3 &41 *!.2/ <0. *37*-!&;;5 A!.2 (/3 72(/1!.* &41 !/45F 303 (!>2. &41 <;!.2**2*&(.*1 .2*5 A*(* &;3/ -&;;*1 .2* 1&0>2.*(3 /, .2* 04 &41 /, ,!;>;* 8H 2**4 I9 2*5 *(* A/(32!77*1 !4-/4K04-.!/4 A!.2 72(/1!.* &41 !/45303 &. (-2 6*403 !4 /*/.!& A2*(* .2*!(3;6!4* A&3 &--/04.*1 .2* /;1*3.!4 .2* 7;&-* &41 A2*(* .2*!(6/3.&4-!*4.!6&>*3 A*(* ,/041 !4 .2* 32&7* /, 3./4*3 3&!1 ./ 2&=* ,&;;*4 ,(/6 2*&=*4 .A&3 2*(* .2&. .2* ,*&3. /, .2* $(A&3 2*;1 !4 .2*!(2/4/0(A!.2 603!-&; -/4.*3.3 .7&(.& &3 &. .2*43 .A/ 2&(!.*3 /4;5 A*(* A/(32!77*1 N$C.& & /(/041 &41 2&*44& /(!>2. &. .2*43 .2*!(4&6*3 A*(* 00/ 8 4-(*&3*9 &41 *> 624) 8SO**49 . A&3 <5 .2*3* >/11*33*3 &41 <5 >(&0; 3 1&0>2.*(/, *-(/73 .2&. .2* .2*4!&4 5/0.23 /4 (*-*!=!4> .2*!(37*&(&41 32!*;1 3A/(* ,&!.2 ./ .2*!(-/04.(5 2* 2&(!.*3 A*(* (*7(*3*4.*1 !4 .2* ,/(6 /, <*&0.!,0; 6&!1*43 .2* .2(** <*!4> >*4*(&;;5 ;!4D*1 2&41 !4 2&41 4 .2* /;1*((*7(*3*4.&./43 .2*5 &(* -;/.2*1 !4 .2* ;&.*(.2*5 &(* ;//3*;5 -;&1 /(*4.!(*;5 041(&7*1

2D(!./4 /, 72(/1!3!D3 !4 2(5>!& 2* &3306*1 4&6* /, .2* &0.2/(/, & (**D (<6&4-* !4 *!>2. </!D3 /4 .2* ,/(.04*3 /, 23*(*&3 &41 &;;!((<2* *A&3 & 2(!3F .!&4 7(/<&<;5 /, .2* C.2 -*4.0(5 !3 .(*&.6*4. /, .2* 3./(5 !3 3!67;* <0. ,0;; /, ;!,* &41 6/=*6*4. .2* 4&((&.!=* !3 *&35 &41 ,;/A!4> .2* ;&4>0&>* /4 .2* A2/;* 4&.0(&; &41 04&1/(4*1 2D(14 8$9 4 (**D 65.2/;/>5 .2* 3/4 /, (<03 &41 .2* .50 .2* 1&(D &41 >(!3;5 /;1 6&4 !4 &<;&-D 3&!;/(3 -;/&D A2/ ,*((!*3 .2* 3/0;3 /, .2* 1*&1 &-(/33 .2* (!=*(/, .2* ;/A*(A/(;1 ,(.2* ,&(* /, &4

2*' -/!4' A&3' 70.' !4./' .2*' 6/0.2' /,' .2*' 1*&1' ,/(' .2!3'70(7/3*' # ' (0 ' = 8@9' ' (**D' 2!3./(!&4' # ' 2&(521!3' '$ (* 2*!(/6&4.;&' ' 0 2*!(/.14;&' ' 32/A' /,' 2&413' 2*' 030&;' 6*.2/1' /,' =/.!4>' !4' (**D' 7/70;&(' &33*6<;!*3' A2*.2*(' &.' 7/;!.!-&;' 6**.!4>3' /(' *;*-.!/43' 4' *;*-.!/43' .2*' (" ' A&3' -/4.(&3.*1' A!.2' .2*' 1(&A!4>' /,' ;/.3' A2!-2' A&3' 030&;' 3!4-*' .2*' .!6*' /,' ;*!3"' .2*4*3' !4' .2*' -&3*' /,' 6&45' /,,!-*3 2*;!1,!4!3' ' $ 2!;!&(-203' 2*' ;*&1*(' /,'&'1!=!3!/4' /,' $NNN' 6*4' # # 2!6B*(&' ',!(*"<(*&.2!4>' 6/43.*(' /,' 5-!&' 1*3.(/5*1' <5' *;;*(72/4' --/(1F !4>' ./' /6*(' .2*' 2!63*(&' A&3' /,' 1!=!4*' /(!>!4' 4',(/4.' !.' A&3' &' ;!/4' <*2!41' !.' A&3' &' 3*(7*4.' &41' !4' .2*' 6!11;*' &' >/&.' &41' A&3' <(/0>2.' 07' <5' 6!3/1&(03' &3' &7;&>0*' ,/(' 6&45' 6*4' *3!/1' -&;;3' 2*(' .2*' 1&0>2.*(' /,' 572&/4' &41' -2!14&' &41' <5' (./3' .2*' 6/.2*(' /,' .2*' 72!40' &41' .2*' *6*&4' ;!/4' *' 1*3-(!<*3' 2*(' &3' ;&(>*' 3A!,.",//.*1' 3.(/4>' A!.2' .2*' 2*&13' /,' &' ;!/4' &41' >/&.' &41' &' 3*(7*4.' 4' 406*(/03' A/(D3' /,' &(.' &3' !4' 3.&.0*3' &41' .2*' -/!43' /,' /(!4.2' !-5/4' &41' /.2*(' -!.!*3' .2*' 2!F 63*(&' !3' >*4*(&;;5' (*7(*3*4.*1' &3' &' ;!/4' A!.2' &' >/&. 3' 2*&1' !4' .2*' 6!11;*' /,' !.3' <&-D' &41' .&!;' *41!4>' !4' &' 34&D*3' 2*&1' 2*' <(/4Q*' 2!63*(&' /,' ((*.!06' 4/A' !4' ;/(F *4-*' !3' &' =*(5' -*;*<(&.*1' A/(D' /,' &(.' =*4' !4' &4.!:0!.5' .2*' 2!63*(&' A&3' (*F >&(1*1' &3' &' 356</;' /,' .2*' =/;-&4!-' -2&(&-.*(' /,' .2*' 5-!&4' 3/!; 2!14*' 8$9' &0>2.*(' /,' (*&3' &41' (*!.25!&' 6/.2*(' /,' 06/;703' <5' /3*!F 1/4' #) & 8@9' &0>2.*(' /,' 3*1&;; 4' 6/.2*(' /,' 2!;&66/4'<5' 7/ /'&41' /,' 0. ;5-03' <5' *(6*3' 2*' A&3' 3;&!4' <5' (. 6!3' ,/(' =*4.0(!4>'./' -/67&(*' 2*(' /A4' <*&0.5' A!.2' .2&.' /,' .2*' >/11*33' # ! 2!(/4' ' *4.&0('3/4' /,' (1403'&41' .2*' -*&4' 4566 72' 2!;5(&' 5' .2*' &!&1' 4566 72' 2&(!-;/' 2*' A&3' ,&.2*(' /,' 41*!3' A!,*' /,' &-03' .2*' 6/.2*(' /,' *;*03' &41' >;&6/4' &41' >(&416/.2*(' /,' -2!;;*3' &41' K&0' *' !3' (*7(*3*4.*1' !4' .2*' ,&<;*' &3' A!3*' &41' K03.' A2!;*' .2*' /.2*(' *4.&0(3' &(*' A!;1' &41' 04F -!=!;!Q*1' *' !3' .2*' 6&3.*(' &41' !43.(0-./(' /,' .2*' 6/3.' -*;*<(&.*1' 2*(/*3' /,' (**D' 3./(5'&3' -.3*/4' &3V4' &3./(' /;51*0-*3' -2!;;*3' &41' 3-;*7!03'./' A2/6' 2*' .*&-2*3' .2*' &(./,' 2*&;!4>' (!=*4'<5' .2*' &7!.23*' ,(/6' 2!3',/(6*(' 1A*;;!4>"7;&-*' &' -&=*' &.' .2*' ./7' /,' *;; 4' 2*' ./!D'07' 2!3' &</1*' /4 .2*' 7(/6/.(5'/,' &;>&' !4' &-/4!&' *(*' 2*' A&3' A/041*1'&--!1*4.&;;5'A!.2'&'7/!3/4*1' &((/A' <5' 2!3',(!*41' *(-;*3' A2/' A&3' 70(30!4>'.2*',;5!4>' *4.&0(3'#) /' *3-&7*',(/6' .2*' 1(*&1,0;' 7&!4' /,' .2*' A/041' 2*' (*4/04-*1' 2!3' !66/(.&;!.5' !4' ,&=/0(' /,' (<6 .2*03' &41' A&3' 3*.' <5' L*03' &6/4>' .2*'3.&(3' &3' .2*' -/43.*;;&.!/4' (2!./4' 2*' 041*(32!(.' A/(4' <5' .2*' (**D3'-/((*37/41!4>'./' .2*' /6&4' " ' A/' D!413' A*(*' -/66/4;5' 1!3.!4>0!32*1' .2*' 32/(.' /(!-' ("' /,' A//;'8,!>' $9' &41 8 &3Y(*;!*,','(O' O;;*(3' 8 ,B40*'3.&.0*..*',(/6' *(-OF % ,#$'H'.&,''OQ!W'9 ;&4*06'!4' &7;*3' 03*06 9 .2*' ;/4>' /4!-' .04!-' /,' ;!4*4' A2!-2' A&3' A/(4' &.' .2*43' 1/A4' ./' .2*' .!6*' /,' *(!-;*3' 2*' ("' -/43!3.*1' /,' &4' /<F ;/4>' 7!*-*' /,' -;/.2' A(&77*1' (/041' .2*' </15' 4*' &(6'A&3' 7&33*1'.2(/0>2' &' 2/;*' !4' .2*' -;/3*1' 3!1*' A2!;*' .2*' .A/' -/6*(3' A*(*' K/!4*1' ./>*.2*(' <5' &' -;&37' /4' .2*' 32/0;1*(' 2*' >&(6*4.' A2!-2' .203' 204>' 1/A4' /7*4' /4' /4*' 3!1*' A&3' ,&3.*4*1' ./F >*.2*(' &.' </.2' -/6*(3' /(' 3/6*.!6*3' 3*A4' ./>*.2*(' <*;/A' .2*' 2!73' .' .2*' A&!3.' !.' A&3' -/4,!4*1' <5' &' <*;.' 4' -/0(3*' /,' .!6*' 32/(.' 3;**=*3' A*(*' &11*1' ./' .2*' &(6"2/;*3' ;**=*3' (*&-2!4>' ./' .2*' A(!3.' A*(*' <5' .2*' (**D3' (*>&(1*1' &3' *,!*6!4&.*" <0.' .2*5' A*(*' A/(4' <5' .2*' 2(5>!&43' &41' *1!&43' &41' /,.*4' &77*&(' /4' 6/406*4.3' &3' 7&(./,' .2*' 1(*33' /,' (!*4.&;3' 2*' ("' A/(4' /4' </.2' 32/0;1*(3' A&3' 1!3.!4-.!=*' /,',(**

6*4 /(D6*4 3&!;/(3 &41 3;&=*3 A/(* & ("A!.2 /4* &(62/;* /4;5 ,/(.2* ;*,. &(6 A2!;* .2* (!>2. &(6 &41 (!>2. <(*&3. A*(* ;*,. 04-/=*(*1 2!3 A&3 -&;;*1 .2* - /04.(5 ,/;D A/(* & ("A/(4 <5 /(!- ;&1!*3 3D!43 2* ("A/(4 <5 /(!- ;&1!*3 A&3 &;/4> >&(6*4. ;!D* &-2*6!3* 3;!. 07F A&(13 /4 </.2 3!1*3 ,(/6 .2* 2!73 &41 2*;1 ./>*.2*(<5 -;&373 &. .2* 32/0;1*(3 4 .2* -&3* /, 5/04> >!(;3 !. A&3 ,&3.*4*1 07 3/ 2!>2 .2&.!. 2&(1;5 (*&-2*1 .2* D4**3 /(.2* (*3. /, (**-* .2* 030&; 1(*33 /, &;&15 A&3 .2* /4!&4 ("; /4> <(/&1 (*&-2!4> ./ .2* ,**. !4 6&45 ,/;13 &41 /4;5 1(&A4 07 &32/(. 1!3.&4-* <5 .2* >!(1;* (/6 .2!3 ;/4> ;&1!*3 ("A&3 1*=*;/7*1 .2* %1/0<;* ("&=*(5 ;/4> &41 <(/&1 7!*-* %/, -;/.2 ,/;1*1 ./>*.2*((/041 .2* </15 &41 ,&3.*4*1 A!.2 -;&373 &. .2* 32/0;1*(3 .A&3 ,/;1*1 1/0<;* (/041 .2* <(*&3. &41 <&-D &41 A&3 /7*4 /(,&3.*4*1 A!.2 -;&373 G/4 .2* (!>2. 3!1* &41 ,*;; 3!67;5 1/A4 ./ .2* ,**. /6*.!6*3 .2* /7*4 3!1* A&3 3*A4 ./>*.2*(,(/6 .2* >!(1;* ./ .2* ;/A*(*1>* B /(.2* >&(6*4.3 A/(4 /=*(.2* ("/ & " & &41

2 653 4 /0.*(>&(6*4. !4.(/10-*1 &. .2*43 ,(/6 2*33&;5 &41 &-*1/4!& . -/4F 3!3.*1/,&4/<;/4>7!*-* /,A//;;*4 -;/.2 .2(/A4 /=*(.2* ;*,. 32/0;1*(.2* /7*4 *413 <*!4> ,&3.*4*1 A!.2 -;&373 /4 .2* (!>2. 32/0;1*(2* (: A&3 A/(4 <5 (*! A&3 &;3/ .2* 04!,/(6 /, >*4*(&; /,,!-*(3 ;!D* .2* 2 " &3 !. A&3 -&;;*1 !4 ;&.*(.!6*3 &6/4>.2* /6&43 . -/66/4;5 3*(=*1 &3 &4 /=*(-/&. ,/(.(&=*;;!4> 204.!4> &41 6!;!.&(5 3*(=!-* # -0.9

2; (!3 8$9 2* 7*(3/4!,!-&.!/4 /, .2* "37(!4> 3*&3/4 &41 >/1F 1*33/,;,;/A*(3.2* A!,*/,L*725(03 6/.2*(/, &(7<3 8H (0!.I9 `2* A&3!1*4.!,!*1 <5 .2* /6&43 A!.2 ;/(& # >

8@9 &0>2.*(/, 672!/4/, (-2/6>403 A!,* /, *:*03 6/.2*(/, *3./(&41 *(!-;56 403 8! ** (* &)

2/*(;;03 8$9 4 .2*4!&4 1(&6&.!3. "/4* /, .2* /;1*3. ..!- .(&>*1!&43 A2/ &77*&(*1 &3 & A(!.*(&3 *&(;5 &3 V@N *A&3 &(!=&;/, (&.!4&3 2(54!-203 &41 ;3-25;03 !3 ,&=/0(!.*;!4* 3**63 ./ 2&=* <**4 .2* 3&.5(!- 1(&6&!4 A2!-2 2* A&3 ;/4> &(7/70;&(A(!.*(%

8@9 (**D *7!- 7/*. </(4 !4 &6/3 &</0. CUN &,(!*41 /, *(/1/.03 &41 &,.*(A&(13 /, .2* 7&(.&4 53&41*(* ;!=*1,!(3.&. .2*43 &41 &,.*(A&(13 &. .2* -/0(. /, ^!4> (-2>;&,;3 /, &-*1/4!& A2*(* 2* A&3 .(*&.*1 A!.2 >(*&. -/43!1*(F &.!/4 &41 1!*1 &</0. CNN (* A&3 .2* ,!(3.*7!- 7/*. A2/ ,**;!4> .2&. .2* /;1 65.2/;/>5 A&3 *02&03.*1 =*4.0(*1 ./ .(*&. &2!3./(!-&;30<K*-./, !66*1!&.* !4F .*(*3. .2* *(3!&4 A&(3!4 &4 *7!- *4.!;*1 --/(1!4> ./ /4* &--/04. .2* 7/*6 A&3 (*&1 !4 .2* 3-2//;3 A!.2 /6*(2* ,*A ,(&>6*4.3 .2&. (*6&!4 32/A .2&.!. 1!1 4/. ;&-D .&;*4. &41 6*(!. <0. ;!..;* (*>&(1 A&3 7&!1 ./ !. <5 7/3.*(!.5

8 9 $(" $ 2!3 2-*(!;03 A&3 &;3/ &4 *7!- 7/*. A2/ &--/6F 7&4!*1 ;*0&41*(.2* (*&. ;*0&41*(7(/6!3*1 2!6 &>/;1 7!*- ,/(*=*(5 >//1 =*(3* 2* A(/.* !4 -*;*<(&.!/4/, 2!3 &-2!*=*F 6*4.3 <0. 1*-;&(*1 .2&. 2* A/0;1 (&.2*(<* .2* 2*(3!.*3/, /6*(.2&4 .2* -2!;;*3 /, 2/*(!;03

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21(03 2* A/(1 (!4 (**D 6*&4. &406<*(/, 7*(3/43 A2/ 7*(,/(6*1 3/4>3 &41 1&4-*3 &. (*;!>!/03 ,*3.!=&;3 2*4 .2* 1(&6& &. .2*43 A&3 1*=*;/7*1 ,(/6 .2* 1!.25(&6<!- -2/(03*3 .2* -2/(03 A&3 (*.&!4*1 &3 .2* -2!*, *;*6*4. !4 .2* !/45"F 3!&- ,*3.!=&; # * !.2 .2* /;1 1(&6&.!3.3 .2* -2/(&; 3/4>3 &41 1&4-*3 60-2 7(*7/41*(&.*1 /=*(.2* &-.!/4 7(/7*(3 .2* ,/(6 /, .2* 1(&6& 1*=*;/7*1 .2* 372*(* /, .2* -2/(03 A&3 >(&10&;;5 ;!6!.*1 3/ .2&. !. .//D .2* -/67&(&.!=*;5 30</(1!F 4&.* 7/3!.!/4 A2!-2 !. /--07!*3 !4 .2* *OF .&4. .(&>*1!*3 &41 -/6*1!*3 2*,04-.!/4 /, .2* -2/(03 (*7(*3*4.*1 <5 !.3 ;*&1*(A&3 ./ &-.3 &3 &4 !1*&; 70<;!- 6/(* /(;*33 -/4F 4*-.*1 A!.2 .2* 6!>2. -/43!3. /, /;1 6*4 &41 A/6*4 /(/, 6&!1*43 .//D &4 !4.*(*3.!4 .2* /--0(F (*4-*3 /, .2* 1(&6& A&.-2*1 .2* &-.!/4 A!.2 :0!*. 3567&.25 &41 3/6*.!6*3 !4F .*(,*(*1 !, 4/. ./ &-. &; ;*&3. ./ *02/(>!=* A&(4!4> .2* -(!.!-&; 7/!4.3 /, .2* &-.!/4 &3 A* 32/0;1 3&5 !4 .2* " ? !. 7*(,/(6*1 ;/4> ;5(!-&; 7!*-*3 A!.2 30!.&<; &-.!/4 /, 1&4-* &41 >*3.0(* 4 .2* <*..*(.!6*3 /, .2* 1(&6& .2*3* 3/4>3 3./!1 !4 -;/3* -/44*0!/4 A!.2 .2* &-.!/4 <0. *=*4 !4 0(!7,1*3 .2!3

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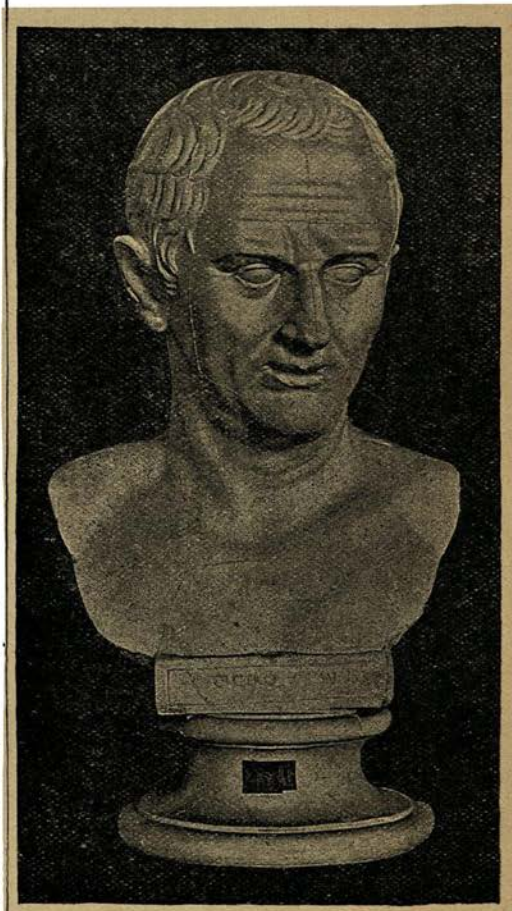
Chthŏnian Gods (from *Chthōn*, the earth). The deities who rule under the earth or who are connected with the lower world, as Hādēs, Plūtō, Persĕphŏnē, Dēmētēr, Dionȳsus, Hĕcătē, and Hermēs.

Chytroi (Feast of Pots) the third day of the Anthestēria. (*See* DIONYSIA.)

Cĭcĕro. (1) *Marcus Tullius Cicero.* The celebrated Roman orator, born at Arpīnum, January 3rd, 106 B.C. He was son of Marcus Tullius Cicero and Helvia, his family being of equestrian rank, but not yet ennobled by office. With his brother Quintus he received his education in Rome, where he soon had an opportunity of hearing and admiring the two most celebrated orators of the day, Crassus and Antonius. He took the *tŏga vīrīlis* in 90 B.C., and, while practising rhetorical exercises, devoted himself with ardour to the study of law. In 89 he served on his first campaign in the Marsian War. After this he began his studies in philosophy, mainly under the guidance of the Academic philosopher, Philo of Larissa. The presence of the Rhodian rhetorician Molo in Rome, and afterwards the instruction in dialectic given him by the Stoic Diŏdŏtus, gave him the opportunity he desired for furthering his training as an orator. Having thus carefully prepared himself for his future vocation during the period of the civil disturbances, he started on his career as an orator under Sulla's dictatorship. He began with civil or private cases. One of his earliest speeches, the *Pro Quinctio*, still survives. This oration [in which he defends his client on the question of his conduct in a partnership] he delivered in 81 B.C., in his 26th year. In the following year he first appeared in a *causa publĭca*, and not on the side of the prosecution, the usual course for beginners, but on that of the defence. His client was Sextus Roscius of Amĕria, accused of murdering his own father. This speech laid the foundation of Cicero's fame, and not only because it was successful. People admired the intrepidity with which Cicero stood up against Chrysŏgŏnus, the favourite of the omnipotent dictator.

In the following year, for the sake of his delicate health, Cicero started on a two years' tour in Greece and Asia, taking every opportunity of finishing his education as a philosopher and orator. For philosophy he had recourse to the most celebrated professors at Athens: for rhetoric he went to Rhodes, to his former instructor, Molo. In B.C. 77 he returned to Rome, his health restored, and his intellect matured. In this year he married Terentia. His career as an advocate he pursued with such success that he was unanimously elected quæstor in 76 B.C. He was stationed at Lilybæum, in Sicily, and administered his office unimpeachably. After his return he entered the senate, and developed an extraordinary activity as a speaker. In consequence he was elected to the curule ædileship in 70 B.C. It was in



* CICERO (*Madrid*).

this year that the Sicilians, remembering the conscientiousness and unselfishness he had displayed in his quæstorship, begged him to lead the prosecution against Verrēs. For three years this man had, in the most infamous manner, ill-treated and plundered the province. Cicero had to contend with all kinds of hindrances thrown in his way

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<5 .2 &(!3./-(&.!- ,(!*413 /, *((*3 5 .2 5 " $ 2 2&1 ./ 6&D >//1 2!3 -;&!63 ./ 7(/3*-0. &>&!43. .2/3 /, &*-!;!03 !>*(2 1*,*4-A&3 ;*1 <5 .2 6/3. ,&6/03 /(&./(/, .2 1&5 /(.*4 3!03 0. !-*(/ 6&4&>*1 ./ -/;;*-.30-2 &6&33 /, *=!1*4-* &41 ./ 6&(32&; !. A!.2 30-2 &<!;!.5 .2&. &,.*(.2 /(,!(3. 2*&(!4> *((*3 ,/041 !. &1=!3&<; ./ (*.!(!4./ =/;04.&(5 *0!;* 2 0403*1 6&.*(!&; !-*(/ A/(D*1 07 !4./ &4 2 " !4 ,!=* 37**-2*3 2 A2/;* 7(/-**1F !4> 6&1* 2!6 3/ 7/70;&(.2&. 37/!;*1 &3 .2 60;.!.01* A&3 4/ /4 -/67;&!4*1 /, 2!3 *-/4/6!-&; *07*41!.0(/4 .2 >&6*3 10(!4> 2!3 3*1!;*32!7 A&3 04&4!6/03;5 *;*-.*1 7(&*./(!4 ?U " 4 .2!3 /,,!- 2 6&1* 2!3 ,!(3. 7/;!.!-&; 37**-2 !4 " " 30--*33,0;;5 1*,*41!4> .2 7(/7/3&; /, .2 .(!<04 &4!;!03 ./ >!=* /67*!03 .2 -/66&41 !4 .2 !.2(!1&.!-A&(A!.2 047(*-*1*4.*1 &41 &;6/3. &<3/;0. 7/A*(4 ?C 2 -&6 ,/(A&(1 &3 -&41!1&. ,/(.2 -/430;32!7 &41 A&3 30--*33,0; !4 37!./ ,.2 .2 ,,/(.3 /, 2!3 *4*6!*3 *1/A*1 2!3 30--*33 ./ .2 3077/(. /, .2 4/<!;!.5 A2/ 2&1 2!.2*(./ (*>&(1*1 2!6 &3 & (" A!.2 1!3,&=/0(<0. 2&1 -/6 ./ (*F -/>4!3 2!6 &3 & -2&67!/4 /, .2 7&(.5 /, /(1*(/<.&!4*1 .2 /,,!-* & 2 2&1 .2 (*3. "" .2&. !3 !4 .2 ,!(3. 5*&(!4 A2!-2 2!3 -&41!1&.0(A&3 ;*>&;;5 7/33!<;* 2 1&4>*(A!.2 A2!-2 &.!;!4* 3 &>!.&.!/4 A&3 .2(*&.*4!4> .2 .&.*1*.*(6!4*1 !-*(/ ./ /,,*(& =!>/(/03 /77/3!.!/4 ./ *=*(5.2!4> ;!D*;5 ./ 1!3.0(< 70<;!- /(1*(!.2 .2!3 =!*A 2 1*;!=*(*1 .2(** 7**-2*3 !4 A2!-2 2 ,(03.(&.*1 .2 &>(&(!&4 7(/7/3&;3 /, .2 .(!<04 *(=!;!03 0;;03 &;3/ ;*1 .2 1*,*4-* /, .2 &>*1 &<!(!03 A2/6 .2 ;*&1*(3 /, .2*1*6/-(&.!- 7&(.5 ./ *0-!. .2 7*/7;* &>&!43. .2 3*4&.* 2&1 7(/3*-0.*1 ,/(.2 60(1*(/, &.0(4!403 .2!(.5"3!0 5*&(3 <*,/(* /& =/!1 .2 1&4>*(&41 *0-!.*6*4. /, &, (*32 -/430;&(*;*-.!/4 ,/(?@ 2 041*(.//D .2 1*,*4-* /, .2 " 1" 0(4& /4 .2 -2&(>* /, <(!<*(5 &41 .2!3 &;.2/0>2 .2 &--03*(3 /, 0(*4& 406<*(*1 &6/4> .2 6 !-*(/3 <*3. ,(!*413 &41 !41**1 (*3.*1 .2*!(-&3 07/4 .2 =*(5 ;&A <5 A2!-2 !-*(/ 2&1 2!63*;, 7(/7/3*1 ./ !4-(*&3 7*4&;.!*3 ,/(<(!<*(5 2 -/437!(&-5 /, &.!;!4 &>=* !-*(/ &4 /77/(.04!.5 /, 1!37;&5!4> !4 .2 6/3. <(!;!&4.; !>2.2!3 &-0.*4*33 2!3 *4*(>5 2!3 7&.(!/.!36 &41 *=*4 2!3 7/A*(&3 &4 /(&./(*1!3-/=*(*1 .2 -/437!(&-5 &41 2*;7*1 ;&(>*;5 ./ 3077(*33 !. <5 .2 *0*-0.!/4 /, .2 -2!*, -/437!(&./(3 A2/ 2&1 (*6&!4*1 <*2!41 !4 /6*

!-*0/3 A030!3!007 6&!00 .2 -;!6&0 /, 2!3 -&(** *(*-*!=*1 !. !3 .(0* .2 2/4/0(&<;* .!.;* /, * <0. &, *A A**D3 ;&.*(2 2&1 &-;*&(A&(4!4> /, 2&. 2 2&1 ./ *07*-. ,(/6 .2 /77/3!.* 7&(.5 !4 .2 A&5 /, (*A&(1 ,/(2!3 3*(=!-*3 2*4 ;&5!,!> 1/A4 <!3 /,,!-* 2 A&3 &</0. ./ 6&D &37**-2 >!=!4> &4 &--/04. /, 2!3 &16!4!3.(&.!/4 2 .(!<04 *.*;;03 *7/3 !4.*((07.*1 2!6 &41 !43!3.*1 /4 2!3 -/4,!4!4> 2!63*;, ./ .2 /&.2 030&; /4 .2 /--&3!/4 4 .2 /;;/A!4> 5*&(2 2&1 /77/(.04!.!*3 ,/(1!B;&5!4> 2!3 *;/:0*4-* !4 .2 1*,*4-* /, /(4*;!03 0;;&4 &41 .2 7/*. (-2!&3 0. 2 &3 /,.*4 &..&-D*1 &41 2&1 !4 7&(.!-0;&(./ 6**. &4*A 1&4>*(!4 .2 2/3.!;!.5 /, ;/1!03 0;-2*(A2/3 6/(.&; 2&.(*1 /4;5 ./ 3/4 2!. 07/4 &-2&4** /, 3&.!4> !.3*;, !-*(/ /0;1 4/. &--*1 ./ .2 7;&43 /, &*3&(/67*5 &41 (&3303 <0. /,,*(*1 .2*6 & 3.(*40/03 (*F 3!3.&4-* /* 1*-*!=*1 2!63*;, &3 ./ 2!3 /A4 7/;!.!-&; !67/(.&4-* &41 (*,03*1 ./ :0!. .2 -!.5 *0-*7. 041*(-/670;3!/4 2 .(!06=!(3 &--/(1!4>;5 &<&41/4*1 2!6 ./ .2 =*4>*&4-* /, ;/1!03 ;/1!03 A&3 *;*-.*1 .(!<04 /, .2 !4 VR &41 &. /4-* 7(/7/3*1 .2&. &45 7*(3/4 32/0;1 <* 6&1* &4 /0.;&A A2/ 32/0;1 2&=* 70. /6&4 -!.!Q*43 ./ 1*&.2 A!.2/0. .(!&; !-*(/ 6*. .2 -2&(>* <5 (*.!(!4> !4./ =/;04.&(5 *0!;* *&(;5 !4 7(!; VR * A*4. ./ 2*33&" ;/4;-& &41 &-*1/4!& A2*(* 2 ,/041 & 3&, (*.(*&. &. .2 2/03* /, .2 :0&*3./(;&4-!03 2 3*4.*4-* A&3 2/A*=*(7(/F 4/04-*1 &>&!43. 2!6 2!3 2/03 /4 .2 &;&.!4 A&3 <0(4. 1/A4 2!3 -/04.(5 2/03*3 7;041*(*1 &41 1*3.(/5*1 &41 *=*4 2!3 ,&6!;5 6&;.(*&.*1 .!3 .(0 .2&. &3 *&(;5 &3 .2 4*0.5*&(2 A&3 (*-&;;*1B A!.2 *=*(5 6&(D /, 1!3.!4-.!/4 &41 A*;-/6*1 !4 .(!06 72 <5 .2 7*/7;* /4 2!3 *4.(&4-* !4./ /6*&. .2 <*>!44!4> /, *7.*6<*(0. 2!3 7/;!.!-&; &-.!=!.5 A&3 -(!77;*1 <5 .2 7/A*. /, .2 .(!06=!(3 !3 ,*&(/, ;/1!03 ,/(-*1 2!6 ./ -/667;5 A!.2 .2*!(-/66&413 &3 & 6*&43 /, D**7!4> !4 .2*!(>//1 >(&-*3 0. &;. .2!3 /4;5 3.!60;&.*1 2!6 ./ 32/A >(*&.*(*4*(>5 &3 &4 /(&./(!3 -2!*, *,,/(.3 A*(* 70. ,/(.2 !7 1*,*41!4> B2!3 ,(!*413 A2*4 7(/3*-0.*1 <5 7/;!.!-&; &4F .&>/4!3.3 &3 ,/(!43.&4-* "6 0<;!03 *3.!03 !4 V? 43*03 ;&4-!03 !4 VC !.03 44!03 !;/ !4 V@ !3 1*,*4-* /, .2 ;&..*(&--03*1 /, .2 60(1*(/, ;/1!03 A&3 0430--*33,0; .2 A&3 &. .2!3 7*(!/1 .2&. 2 <*>&4 ./ &KB;5 2!4K3*;, ./ ;!.*(&.0(*

4'V ' -'24A&3*;*-.*1'&0>0("(/6' 0;5'V$'./' 0;5'VN'2*'&16!4!3.*(*1'.2*'7(/=!4-//,' !;!-!&'&3'7(/-/430;' 4' .2!3' -&7&-!.5'2!3' -;*6*4-5'07(!>2.4*33'&41'043*;,!324*33'A/4',/('2!6'.2*'>(*&.*3.'(*37*-.' /('2!3'-/410-.'!4'&'-&67&!>4'&>&!43.'.2*'(/<2*('.(!<*3'/,' /04.' 6&403'2*'A&3'2/4/0(*1'<5'.2*'.!.;*'/,' ' '&'70<;!-'.2&4D3F>!=!4>'&41'.2*'7(/37*-.'/,'&'.(!06 72 *';&41*1'!4'.&;5'./A&(13'.2*'*41'/,' /=*6<*('(VN'&41',/041'.2&.'&'<(*&-2'<*.A**4'/6 7*5'&41'.*3&('A&3'!4*=!.&<;**'2*'-!=!;'A&('<(/D*'/0.'!4'.2*'4*0.'5*&('&41'&,.*(';/4>'2*3!.&.!/4'!-*(/',!4&;;5'1*-!1*1',/(' /6 7*5'&41',/;;/A*1'2!6'./'(**-*'0.'&,.*(.2*'<&..;*'/,' 2&(3,.;0'!4'A2!-2'!;;"2*&;.2'7(*=*4.*1'2!6',(/6'.&D!4>'&'7&(.'2*'1*3*(.*1'2!3',(!*413'&41'-(/33*1'./' (041!3!/6' *(*'2*'2&1'./'A&!.'&'A2/;*'5*&('<*,/(*' &*3&('7&(1/4*1'2!6'&41'>&=*'2!6';*&=*'./'(*.0(4'./' /6*"3*3&('.(*&.*1'2!6'A!.2'1!3.!4-.!/4'&41'D!414*33'<0.'!-*(/'D*7.'&;//,'(/6'70<;!-';!,*' /.2!4>'32/(.'/,'.2*'-&;;3'/,',(!*41F32!7'-/0;1'!410-*'2!6'./'&77*&('!4'.2*'-/0(.B'&3'2*'1!1',/('&(-*;;03'!>&(!03'&41'*!/.&(03'2*'-&;&6!.!*3'/,'2!3'-/04.(5"2!3'3*7&(&.!/4',(/6'2!3'A!,*'*(*4.!&'!4'C?'(''&,.*('&'6&((!*1';!,*'/,'.2!(.5".2(**'5*&(3"2!3'2&3.5'04!/4'A!.2'.2*'5/04>'&41'A*&;.25'0<;!;!&'3/'3//4'./'<*'1!33/;=*1"'.2*'042&775'6&((!&>*'&41'1*&.2'/,'2!3',&=/0(!.*'1&0>2.*('0!&"&;'.2!3'A&3'&'2*&=5'&,!1!-.!/4',/('2!6'*',/041'3/6*'-/43/;&.!/4'!4'3.015!4>'72!;/F3/725'&41'&77;5!4>'2!63*;,'A!.2'*4*(>5'./';!.*(&(5'A/(D2*'60(1*('/,' &*3&('/4' &(-2'$V.<'CC'(/03*1'2!6',(/6'2!3'(*.!(*6*4.'.2/0>2'2*'2&1'.&D*4'4/'&-.0&;'7&(.'!4'.2*'1*A'!3'7&.(!/.!36'*0-!.*1'2!6'/4-*'6/(*'./'.&D*'&4'&-.!=*'7&(.'!4'70<;!-';!,*'&41'2!3',!(3.'&!6'A&3'./'*,,*-.'&'(*-/4-!;!&.!/4'/,'7&(.!*3'*'30--**1*1'3/',&('&3'./'3*-0(*'.2*'7&33!4>'/,'&'>*4*(&;'&64*3.5' 0.'!.'A&3'4/.';/4>'<*,/(*'.2*'!4.(!>0*3'&41'.2*'2/3.!;!.5'/,'.2*'63&(!&4'7&(.5',/(-*1'2!6'&>&!4'./';*&=*'/6*' *'A&3'/4'2!3'A&5'./'(**-*'A2*4'&.'.2*'*41'/,' 0>03.'2*'A&3'(*F-&;;*1'<5',&;3*'(06/0(3'./'.2*'&7!./;'4'&'6/6*4.'/,'1**7'!((!.&.!/4'&>&!43.'4.&!43'<*'1*;!=*(*1'/4'.2*'!41'/,' *7F.*6<*('.2*',!(3.'/,'2!3',/0(.**4'2!;!77!-'/(&.!/43'3/'-&;;*1'&,.*('.2/3*'/,' *6/3"'.2*4B'2*3*-/41'2!;!77!-'A&3'4*=*('37/D*4'<0.'70<;!32*1'&)'&'7&672;*."'.2*';&3.'A&3'1*;!=*(*1'/4'.2*'@$3.'7(!;' -'C'4'.2*'(*.!(*6*4.*/,' 4./4!03',(/6' /6*'!-*(/',041'2!63*;,'&>&!4'7;&5!4>'&'7(/6!B4*4.'7&(.'!4'.a/;!.!-3' '.2*'*,,/(.3'/,'2!3'7&(.5'./'<(!4B'&</0.'&'(*3./(&.!/4'/,'.2*'&4-!*4.'(*70<;!-&4',(**1/6'-*4.(*1'!4'2!6'0.A2*4'-.&=;&403'1!3&77/!4.*1'.2*'2/7*3'A2!-2'2*'2&1'*0-!.*1'&41'&..&-2*1'2!6'3*;,./'4./4!43'&41'>7!103'!4'.2*'3*-/41'.(!06=!(&.*'!-*(/'4/A'.2*'2!*,'6&4'!4'.2*'3*4&.*'A&3'1*-;&(*1'&4'/0.;&A'4F.*41!4>'./',;5'./'&-*1/4!&'&3'2*'2&1'1/4*',!,.**4'5*&(3'<*,/(*'2*'A&3'/=*(.&D*4'<5'2!3'70(30*(3'4*&('&!*.&'&41'70.'./'1*&.2'/4'*7.*6<*('U.2'C'32/(.;5'<*,/(*'2*'<&1'-/67;*.*1'2!3'3!0.5",/0(.2'5*&('!3'2*&1'&41'(!>2.'2&41'A*(*'*07/3*1'/4'.2*'<5'4./4!03 2*';!.*(&(5';&</0(3'/,' !-*(/'3!>4&;!0*'&4'!67/(.&4.'&1=&4-*'!4'.2*'1*=*;/76*4.'/,'&.!4';!.*(&.0('*'!3'4/.'/4;5'.2&.'2*'!3'./'<*'(*>&(1*1'&3'.2*'-(*&./('/,';&33!-&;'&.!4'7(/3*'*'A&3'&;3/'.2*'>(/041'./'&45'>(*&.'*0.*4.'!4',!*;13'/,';!.*(&.0(*'A2!-2'<*,/(*'2!6'2&1'(*6&!4*1'&;6/3.'04./0-2*1'*'2&1'!4F3!>2.'*4/0>2'./'7*(-*!=*'.2&.'2!3'=/-&.!/4';&5'!4'.2*'-&(**('/,'&4'/(&./('!3'!4103.(5'.2(/0>2/0.'2!3'A2/;*';!,*'A&3'04.!(!4>'2*'A&3'4*=*('<;!41*1'<5'30--*33"./'*10-&.*'2!63*;,'&41'7*(,*-.'2!63*;,'!4'2!3'&(.'A&3'.2*'/<(*-.'A2!-2'2*'4*=*('<(!;;!&4.'.*3.!6/45'./'2!3'-/6<!4&.!/4'/,'>*4!03'A!.2'!4103.(5'*3!1*3'.2*',!,.5"3*=*4'37**-2*3'A2!-2'30(=!=*'!4'&'6/(*'/('<33'-/67;*.*'32&7*'&41'.2*'6/3.'!67/(.&4.'/,'A2!-2'2&=*'<**4'6*4.!/4*1'&</=*'A*'2&=*'&</0.'.A*4.5',(&>6*4.3'/,'/.2*(3'&41'.2*'.!.;*3'/,'.2!(.5",!=*'6('*'!-*(/'A&3'(03.!,!*1'!4'</&3.!4>'.2&.'4/'/(&./('2&1'A(!..*4'3/'6&45'37**-2*3'&41'!4'30-2'1!,,*(*4.'3.5;*3'&3'2!63*;,'f(&./('-'@T'Ng'2*3*'/(&.!/43'A*(*'7&(.;5'7/;!.!-&;'7&(.;5',/(*43!-'.2*';&..*('<*!4>'6/3.;5'/4'.2*'3!1*'/,'.2*'1*F,*4-*'!-*(/'A&3'&;3/'.2*'&0.2/('/,'7&4*F>5(!-3'&3'.2&.'/('!43.&4-*'07/4'&./'d!.2',*A'*0-*7.!/43'&3'.2*'3*-/41'&>&!43.'(*((*3'.2*',';4*'&41'.2*'7&4*>5(!.3'.2*5'A*(*'&-.0&'5'1*;!=*(*1'&41'70<;!32*1'&,.*(A&(13'0.*41!4>'/=*('.2!(.5"*!>2.'5*&(3'.2*5'>!=*'&4'*0-*;;*4.'!1*&'/,'!-*(/3'3.*&15'7(/>(*33'!4'.2*'6&3.*(5'/,'2!3'&(.'2*'(*.!(*6*4.*/,'4./4!03',(/6'/6*'!-*(/',041'2!63*;,'&>&!4'7;&5!4>'&'7(/6!B4*4.'7&(.'!4'.a/;!.!-3' '.2*'*,,/(.3'/,'2!3'7&(.5'./'<(!4B'&</0.'&'(*3./(&.!/4'/,'.2*'&4-!*4.'(*70<;!-&4',(**1/6'-*4.(*1'!4'2!6'0.A2*4'-.&=;&403'1!3&77/!4.*1'.2*'2/7*3'A2!-2'2*'2&1'*0-!.*1'&41'&..&-2*1'2!6'3*;,./'4./4!43'&41'>7!103'!4'.2*'3*-/41'.(!06=!(&.*'!-*(/'4/A'.2*'2!*,'6&4'!4'.2*'3*4&.*'A&3'1*-;&(*1'&4'/0.;&A'4F.*41!4>'./',;5'./'&-*1/4!&'&3'2*'2&1'1/4*',!,.**4'5*&(3'<*,/(*'2*'A&3'/=*(.&D*4'<5'2!3'70(30*(3'4*&('&!*.&'&41'70.'./'1*&.2'/4'*7.*6<*('U.2'C'32/(.;5'<*,/(*'2*'<&1'-/67;*.*1'2!3'3!0.5",/0(.2'5*&('!3'2*&1'&41'(!>2.'2&41'A*(*'*07/3*1'/4'.2*'<5'4./4!03 2*';!.*(&(5';&</0(3'/,' !-*(/'3!>4&;!0*'&4'!67/(.&4.'&1=&4-*'!4'.2*'1*=*;/76*4.'/,';&.!4';!.*(&.0('*'!3'4/.'/4;5'.2&.'2*'!3'./'<*'(*>&(1*1'&3'.2*'-(*&./('/,';&33!-&;'&.!4'7(/3*'*'A&3'&;3/'.2*'>(/041'./'&45'>(*&.'*0.*4.'!4',!*;13'/,';!.*(&.0(*'A2!-2'<*,/(*'2!6'2&1'(*6&!4*1'&;6/3.'04./0-2*1'*'2&1'!4F3!>2.'*4/0>2'./'7*(-*!=*'.2&.'2!3'=/-&.!/4';&5'!4'.2*'-&(**('/,'&4'/(&./('!3'!4103.(5'.2(/0>2/0.'2!3'A2/;*';!,*'A&3'04.!(!4>'2*'A&3'4*=*('<;!41*1'<5'30--*33"./'*10-&.*'2!63*;,'&41'7*(,*-.'2!63*;,'!4'2!3'&(.'A&3'.2*'/<(*-.'A2!-2'2*'4*=*('<(!;;!&4.'.*3.!6/45'./'2!3'-/6<!4&.!/4'/,'>*4!03'A!.2'!4103.(5'*3!1*3'.2*',!,.5"3*=*4'37**-2*3'A2!-2'30(=!=*'!4'&'6/(*'/('<33'-/67;*.*'32&7*'&41'.2*'6/3.'!67/(.&4.'/,'A2!-2'2&=*'<**4'6*4.!/4*1'&</=*'A*'2&=*'&</0.'.A*4.5',(&>6*4.3'/,'/.2*(3'&41'.2*'.!.;*3'/,'.2!(.5",!=*'6('*'!-*(/'A&3'(03.!,!*1'!4'</&3.!4>'.2&.'4/'/(&./('2&1'A(!..*4'3/'6&45'37**-2*3'&41'!4'30-2'1!,,*(*4.'3.5;*3'&3'2!63*;,'f(&./('-'@T'Ng'2*3*'/(&.!/43'A*(*'7&(.;5'7/;!.!-&;'7&(.;5',/(*43!-'.2*';&..*('<*!4>'6/3.;5'/4'.2*'3!1*'/,'.2*'1*F,*4-*'!-*(/'A&3'&;3/'.2*'&0.2/('/,'7&4*F>5(!-3'&3'.2&.'/('!43.&4-*'07/4'&./'d!.2',*A'*0-*7.!/43'&3'.2*'3*-/41'&>&!43.'(*((*3'.2*',';4*'&41'.2*'7&4*>5(!.3'.2*5'A*(*'&-.0&'5'1*;!=*(*1'&41'70<;!32*1'&,.*(A&(13'0.*41!4>'/=*('.2!(.5"*!>2.'5*&(3'.2*5'>!=*'&4'*0-*;;*4.'!1*&'/,'!-*(/3'3.*&15'7(/>(*33'!4'.2*'6&3.*(5'/,'2!3'&(.'2*'(*.!(*6*4.*/,'4./4!03',(/6'/6*'!-*(/',041'2!63*;,'&>&!4'7;&5!4>'&'7(/6!B4*4.'7&(.'!4'.a/;!.!-3' '.2*'*,,/(.3'/,'2!3'7&(.5'./'<(!4B'&</0.'&'(*3./(&.!/4'/,'.2*'&4-!*4.'(*70<;!-&4',(**1/6'-*4.(*1'!4'2!6'0.A2*4'-.&=;&403'1!3&77/!4.*1'.2*'2/7*3'A2!-2'2*'2&1'*0-!.*1'&41'&..&-2*1'2!6'3*;,./'4./4!43'&41'>7!103'!4'.2*'3*-/41'.(!06=!(&.*'!-*(/'4/A'.2*'2!*,'6&4'!4'.2*'3*4&.*'A&3'1*-;&(*1'&4'/0.;&A'4F.*41!4>'./',;5'./'&-*1/4!&'&3'2*'2&1'1/4*',!,.**4'5*&('

/4 .2 ;!4 . / < .&D*4 !4 -&4=&33!4> ,/(.2 -/430;32!7 F

!4-;43 ;;6*4.43

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!4K2(&3 &9 ": 077/3*1 !4 .2 (**D 65.2/;/>5 . / 2&= <**4 D!4> /, 57(03 .2 /;1*3. 7(!*3. /, 72(1!. !4 &72/3 .2 ,/041*(/, .2&. -!.5 &41 .2 &4-*3./(/, .2 7(!*3.;5 ,&6!;5 /, .2 $ ":2 !3 A*&;.2 &41 ;/4> ;!,* <*3./A*1 07/4 2!6 <5 72(/1!.* *(7(/=*(<!&; G&41 ,(/6 7/;;/ A2/ A&3 3&!1 . / < 2!3 ,&.2*(2 (*-*!=*1 .2 >!,. /, 3/4> A&3 &--/04.*1 .2 ,/041*(/, .2 &4-!*4. 25643 304> &. .2 3*(=!-*3 /, .2 &72!&4 72(/1!.* &41 /, 1 4!3 /43*:0*4.;5 2 A&3 (*-D/4*1 &6/4> .2 /;1*3. 3!4>*(3 &41 603!-!&43 2!3 4&6* !41**1 <*!4> 2/*4!-!&4 1*(!=*1 ,(/6 Y4/(& 2&(7 2 3./(5 &11*1 .2&. 2 A&3 .2 ,&.2*(/, 1/4!3 <5 2!3 /A4 1&0>2.*(5((2& &41 .2&. A2*4 6&1 &A&(/, .2 3!4 2 ./ /D &A&5 2!3 /A4 ;!,*

!7743 2 &.!4 4&4! ,/(& 3*70;-2(&; 6/406*4. 2 ,/(6 /, .2 A&3 3/6*.!6*3 .2&. /, & 7*1*3.&; A!6 3*=*(&; 1!=!3!/43 3077/(.!4> &4 07(!>2. -/4* *!.2*(A&3 & (*-(*&.!/4 >(/041 ;&!1 0. <5 D!4> &(:0!4;03 (!3/43 !4 .2 =&;;*5 <*.A**4 .2 &;&.!4 &41 =*4.!4 2!;;3 3/0.2 /, .2 &7!./; .3 -*4.(A&3 6&(D*1 <5 .2 &;.&(/, *4303 3*-/41 -!(-03 -&;;*1 .2 $ A " A&3 <0!;. <5 .2 -*43/(;&6!4!03 /4 .2 &6703 &(.!43 !4 @@N / *=*(&; 6/(A*(<0!;. 10(!4> .2 !67*(!&; 7*(!/1 3/6 / ,A2!-2 -&4 3.!;; < (*-/>4!3*1 !4 .2*!((0!4*1 3.&.* 0-2

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./ .2 3*&.3 .2 406<*(/ A2!-2&6/04.*1 !4 3*3&(3 .!6* ./ $VN NNN &41 !4 .2 C.2 -*4.0(5 &,.*(.2 <0!;1!4> 2&1 <**4 (*7*&.*1;5 *4;&(>*1 ./ RV NNN 2 $;/A*3. (/A /,3*&.3 (044!4> !6 6*1!&.*;5&</= .2 (&-*"-/0(3 A&3 7(/F .*-.*1 ,(/6 .2 A!;1 &4!6&;3 <5&(&!;!4> &41 &.(*4-2# .*4 ,**.!4 A!1.2 &41 1*7.2 2!3 .(*4-2 A&3 2/A*=*(,!;;*1 07 &. .2 -/6 6&41 /, *(/ 2 *41 /, .2 -!(-03 &. A2!-2 A*(.2 >&. /, *4.(&4-* &41 .2 7&(.!.!/43 !4 A2!-2 .2 -2&(!/.3 3.//1 A&3 ,;&4D*1 <5 .A/ ./A*(3 # /--07!*1 <5 <&413 /, 603!- *.A**4 .2*3* A&3 .2 11 /, .2 7(*F 3!1!4> 6&>!3.(&.* 2 /77/3!.* *41 /, .2 <0!;1!4> A&3 3*6!-!(-0;&(&41 2&1 &>&.* -&;;*1 .2 (A2!-2 3**63 ./ 2&=* <**4 03*1 /4;5 /4 *0.(&F /(1!4&(5 /--&3!/43 2 3*4&./(3 &41 @ 2&1 3*7&(&.* 7;&-*3 &;;/..*1 .2*6 &3 !4 .2*.(* 2 3*&.3 &33!>4*1 ./ .2 -/6 6/4 7*/7;* A*(* 1!=!1*1 &--/(1!4> ./ .(!<*3 &41 .2 3*0*3 A*(* 4/.3*7&(&.*1 2 !>2./(.A*;=* /7*4!4>3 8-&(-*(*39 ,(/6 A2!-2 .2 -2&(!/.3 !330*1 ;&5 &3 A* 2&=* &;(*&15 6*4.!/4*1 &.</.2 3!1*3 /, .2 *4.(&4-* &41 A*(* -;/3*1 A!.2 <&(3 2*5 A*(* &((&4>*1 !4 3;&4.!4>;!4*3 3/.2&.2 1!3.&4-* ,(/6 .2 -&(-(*(*3 ./ .2 3.&(.!4>7/!4. A&3 *:0&;!0*1 ,(&;, 2 3.&(.!4>7/!4. A&3 6&(D*1 <5 .2(** -/4!-&;7!;;&(3 86*.-*9 3.&41!4>/4 &30<3.(0-.0(* 2(* /.2*(3!6!;&(6*.X7 -/((*37/41!4> ./ .2*6 3.//1 &. .2 /.2*(/(3*6!-!(-0;&(*41 /, .2 -!(-03 *.A**4 .2 .A/7/!4.3 A2*(* .2 6*.-* 3.//1 A&3 <0!;.& ;/A& ;837!4&9 *0.*41!4> .2(/0>2 .2 A2/;* ;*4>.2 /, .2 -/0(3* 4 .2!3 .2*(* 03*1 ./ 3.&41 .2 6&3. /, & 32!7 A2!-2 &,.*(4>03.03 .!6* >&=* 7;&-* ./ &4 /<*;!3D 2 37!4& A&3 &1/(4*1 A!.2 7!;;&(3 ;!..;* 32(!4*3 &41 3.&.0*3 /, .2 >/13 *37*-!&;;5 /, !-./(5 3*-/41 &41 ;/,.!*(/<*;!3D A&3 &11*1 <5 /43.&4.!4* 2 /<*;!3D /, 0>03.03 4/A 3.&413 !4 .2 , QQ , .2&. /, /43.&4.!4 /4 .2 3:0&(* !4 ,(/4./, .2 &.*(&4 2*(* A&3 &;3/ &4 *;*=&.*1 30<3.(0-.0(* 3077/(.!4> 3*=*4 3-0;7.0(*1 1/;72!43 37/0.!4> A&.*(&41 & 7*1*3.&; A!.2 3*=*4 *>>"32&7*1 /<(*-.3 07/4 !. .2 03* /, A2!-2 A!;; <* *07;&!4*1 <*;:A 2 >&6*3 A*(* >*4*(&;;5 /7*4*1 <5 &3/;*64 7(/-*33!/4 ,(/6 .2 &7!./;.2(/0>2 .2 ,(/06 ./ .2 -!(-03 &41 .2(/0>2 .2 A2/;* ;*4>.2 /, .2 -!(-03 (/041 .2 " . .2 2*&1 /, .2 7(/-*33!/4 -&6* .2 >!=*(/, .2 >&6*3 3!..!4> !4 & -&(/, .(!06 72 !4 .(!06 72&; -/3.06* * A&3 ,/;;/A*1 <5 .2 !6&>*3 /, .2 >/13 </(4* ;!..*(3 /(-&((!&>*3B &41 *3-/(.*1 <5 .2 1 &41 7(!*3.;5 -"/(7/(&./43 4 .2 !67*(!&; &>* .2 7(/-*33!/4 !4-;01*1 .2 !6&>*3 /, .2 1*-*&3*1 *67*(/(3 &41 *67(*33*3 ./ A2/6 1!=!4* 2/4/0(3 A*(* 7&!1 2 7(/-*33!/4 6/=*1 .2(/0>2 .2 *4.(&4-* A2!;* -(/A1 (/3* 07 -2**(*1 &41 -;&77*1 .2*!(2&413 2 7(*3!1*4. 1(/77*1 & A2!.* 2&41D*(-2!*, !4./ .2 &(*4& &41 .2 (&-* <*>&4 /0(3/6*F .!6*3 &3 6&45 &3 3!0 -2&(!/.3 1(/=* /0. ,(/6 <*2!41 .2 <&((!*(3 &.2 (!>2. 2&41 /, .2 " 2*4 .2*5 (032*1 &;/4> .2 " &3 ,&(&3 .2 ,0(.2*(7/3.3 (/041*1 .2*3* &41 1(/=* 2&-D 1/A4 .2 ;*, 3!1* ./ .2 3.&(.!4>"7/3.3 2*5 !&1* .2 "-!(-0!. 3*=*4 .!6*3 &41 ,!4&;;5 1(/=* /, .2 -/0(3 .2(/0>2 .2 <&((!*(3 /4 .2 ;*,. /, .2 " *=*4 -!(-0!.3 -/43.!.0*1 /4 2*&. /(-2&;D ;!4 A&3 1(&A4 &-(/33 .2 >(/041 4*&(.2 *4.(&4-* &41 .2 =!-./(5 A&3 &1K01>*1 ./ .2 1(!=*(A2/ ,!(3 -(/33*1 !. 0(!4> .2 (*70<;!-&4 7*(!/1 .2 404;<*(/ /(2*&.3 &6/04.*1 ./ .4 /(.A*;=* &41 &,.*(.2 .!6* /, &;!>.;& ./ .A*4.5",/0(.&D!4> 07 .2 A2/;* 1&5 / D**7 .2 37*-.&./(3 -/43.&4.;5 !4 ,/(6*1 2/A 6&45 /, .2 3*=*4 2*&.3 2&1 <**4 (04 /4 /, .2 *>>"32&7*1 3!>4&;3 6*4.!/4*1&</=* A&3 .&D*4 1/A4 &,.*(*&-2 2*&. &41 7(/<&<;5 &;3/ /4 /, .2 1/;72!43 A&3 .0(4*1 (/041 2 -2&(!/.3 2&1 .A/ A2**;3 A*(* =*(5 36&;; &41 ;!>2. &41 A*(* /7*4 <*2!41 2 .*&6 030&;;5 -/4 3!3.*1 *!.2*(/, ..=/ &(1 /(/ ,/0(2/(3* & 1 4 .2 ;&..*(-&3 .2 .A/ 6!11;* 2/(3* /4;5 A*(* 5/D*1 ./>*.2*(2 1(!=*(& 1 /(1 ,!>@9 3./!1 !4 2!3 -2&(!/. 1(*33*1 !4 & 3;**=*;*33 .04!- 3.(&77*1 (/041 .2 077*(7&(./, 2!3 </15 & 2*;6*."32&7*1 -&7 /4 2!3 2*&1 & A2!7 !4 2!3 2&41 &41 & D4!,* A!.2 & 3*6!"-!(/0!&(<;&1* !4 2!3 >!(1;* ./ -0. .2 (*143 A!.2 !4 -&3* /, 4**1 ,/(.2 (*143 A*(* 030&;;5 &..&-2*1 ./ 2!3 >!(1;* 2 6&!4 1&4>*(;&5 !4 .0(4!4> (/041 .2 7!;;&(3 / -/6* !4./ -/;;!3!/4 A!.2 .2*6 A&3 ,&.&; 4/. /4;5 ./ .2 1(!=*(2!63*;, <0. ./ .2 1(!=*(!66*1!&.*;5<*2!41 2!6 2 -2&(!/.3 &41 7(/<&<;5 &;3/ .2 .04!-3 &41 *:0!76*4.3 /, .2 1(!=*(3 A*(* 1*-D*1 A!.2 .2 -/;/0(3 /, .2 1!,,*(*4. " &3 .2*5 A*(* -&;*1 , .2*3* .2*(* A*(* /(!>!4&;;5 /4;5 .A/ .2 2!.* &41 .2 *1 . .2 <*>!44!4> /, .2 !67*(!&; 7*(!/1 A* 2*&(/, .A/6/(*((**4 &41 .2 ;0* A/ 6/(* /;1 &41 0(7;* A*(* !4.(/10-*1 <5

/!&!.!&4 ' <0.' 7(/<&<;5' 1(/77*1' /0.' /,' 03*' &,.*(' <!3' 1*&.2 ' /A&(13' .2*' *41' /,' .2*' (1' -*4.0(5' ' .2*' 2!.*' ,&-.!/4' K/!4*1' !.2' .2*' (**4 '&41' .2*' *1' A!.2' .2*' ;0* ' --/(1!4>;5' !4' .2*' ;&.*' /6&4' &41' 5Q&4F .!4*' 7*(!/1' A*' >*4*(&;;5' 2*&(' /4;5' /,' ;0*' &41' (**4 ' .' A&3' .2*' 7&(.5' ,**;!4>' .203' %*4>*&1*(*1' A2!-2' A&3' .2*' 6&!437(!4>' /,' .2*' 7&33!/4&.*' !4.*(*3. ' /,.*4' &6/04.!4>' &;6/3.' ./' 6&14*33 ' A2!-2' .2*' 7*/7;*' .//D' !4' .2*' >&6*3' /,' .2*' -!(-03 .203' !.' A/0;1' /,.*4' 2&77*4' .2&.' &' 1(!=*(' A/0;1' (!3*' ./' .2*' 7/3!.!/4' /,' &' -/4.(&-./(' /(' <*-/6*' 1!(*-./(' /,' &' -/6 7&45' /,' -/4F .(&-./(3' 06*(/03' 6/406*4.3' 30(=!=*' ./" -/6 6*6/(&.*' .2*!(' G=!-./(!*3' /6*.!6*3' !41**1' &' -*;*<(&.*1' 2/(3*' A/0;1' 2&=*' &' 6/406*4.' 70.' 07' ./' 2!6 ' -/4.*3.' /,' (!1*(3 '*&-2' A!.2'.A/' 2/(3*3' A&3' /,.*4' &11*1' ./' .2*' -2&(!/.'" (&-*3' 2*3*' (!1*(3' A*(*' -&;;*1' ' <*-&03*' .2*5' K067*1' ,(/6' /4*' 2/(3*' ./' &4/.2*(' A2!;*' >/!4>' &.' ,0;;' >&;;/7' 2*' -!(-03' A&3' &;3/' 3*1' ,/(' </0!4>"6&.-2*3' A(*3.;!4>" 91*0"&%' &41' ,//."(&-!4>" <0.' 10(!4>' .2*' !67*(!&;' 7*(!/1' 3*7&(&.*' <0!;1!4>3' A*(*B 030&;;5' &77(/7(!&.*1' ./' .2*3*' &603*6*4.3' ;&1!&./(!&;' -/4.*3.3' &41' A!;1"<*&3.' <04.3' A*(*' /(!>!4&;;5' 2*;1' !4' .2*' -!(-03' *=*4' &,.*(" .2*' <0!;A4>' /,' *"&&672!.2*&.(* *3!1*3' .2*3*' >&6*3' .;!*' -!(-03' A&3B 3/6*.!6*3' 03*1' ,/(' 6!;!.&(5' (*=!*A3' 2*' -&=&;(5' 6&4/*0"=(*3' ,/(' !43.&4-*' /,' .2*' 3!0' 1!=!3!/43' /,' .2*' D4!>2.3' & ' Y ' A!.2' .2*!(' 3!0' ;*&1*(3' & ' &41' &4' !67*(!&;' 7(!4-*' &3' " ' " ' &." .2*!(' 2*&1' A/0;1' /--&3!/4&;;5' <*' 2*;1' .2*(*' 41*(' .2*' *67*(/(3' /,' .2*' 0;!&4' 154&3.5' &',&=/0(!.*' 63.!6*' A&3' .2*' + ' /(') ' + ' 2!3' -/43!3.*1' !4' &' 406<*(' /,' 6&4/*0=(*3' 7*(,/(6*1' <5' </53" <*;/4>!4B' ./' 3*4&./(!&;' &41' /.2*(' (*37*-.F &<;*' ,&6!;!*3' 2*5' (/1*' /4' 2/(3*<&-D' !4' ;!>2.' &(6/0(' !4' 3*7&(&.*' 1!=!3!/43' &41' A*(*' 7(&-.!3*1' ,/(' .2*' 70(7/3*' <5' 37*-!&;' .(&!4*(3 !(!3' ' !303 3 06' ' " ;.2D(&' & ' ' 3.(!4>*1' !43.(0F 6*4.' # 6& *&)' 83/' .2*' ,&<;*' (&4g' <5' 7/;;/' 2*' (' "A&3' 7;&5*1' /4' /--&3!/43' /,' -*(*6/45' 30-2' &3' 70<;!-' >&6*3' &41' 7(/F -*33!/43' .2*' : ' &' 36&;;*(' !43.(06*4.

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2*' 4*-*33&(5'&..*41&4.3' .2*' 2/(3*3' &41' .2*' >*4*(&;' *:0!76*4.' /,' .2*' >&6*3' A*(*' 7(/=!1*1' &.' .2*' -/3.' /,' .2*' >!=*(' <5' 37*-!&;' -/67&4!*3' A!.2' /4*' /(' 6/(*' 1!(*-./(3' &.' .2*!(' 2*&1' 2*3*' -/67&4!*3' GA*(*' 1!3F .!4>0!32*1' <5' &1/7.!4>' .2*' 1!,,*(*4.' -/;/0(3' /,' .2*' ,&-.!/43' 2*' 1(!=*(3' A*(*' 6/3.;5' 3;&=*3' /(' 7*(3/43' /,' ;/A' 7/3!.!/4' 2*' -&;;!4>' A&3' ;/D*1' 1/A4' 07/4' <0.' &.' .2*' 3&6*' .!6*' &' 1(!=*(' /,' *0-*7.!/4&;' 3D!;;' A/0;1' <*' *0.(&/(1!4&(!;5' 7/70;&(' 2*' =!-F ./(3' <*3!1*3' .2*!(' 7&;63' &41' -(.A4' /,.*4' (*-*!=*1' -/43!1*(&<;*' 3063' /,' 6/4*5" &41

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&'
8$9' 8@9' &41' 8C9' ,..*-1' /(</A!-/'] ' O;'] '=!'] ' OO!=' 8Z9' 1*D*(' 5 " ddd

&41' *&3!*(' ./' 2/;1' A&3' 6/(*' -/66/4;5' 03*1' !4' /(1!4&(5';!,*' 2*' (' -/43!3.*1' /,' &' 3/041!4>' </&(1' A2!-2' *0.*41*1' !4./' A/' &(63' /(' 3!1*"7!*-*3' 2*' 3/041!4>"</&(1

;;*4.*3' 2!3' A&3' .2*' 4&6*' ,/(' 30-2' !42&<!.&4.3' /,' /6*' &3' 2&1' ;/3.' /(' >!=*'4' 4!7' .2*' -!.!Q*432!7' /,' .2*!(' /A4' -!.!*3' &41' 2&1' 3*..;*1' !4' /6&4' .*((!./(5' *(*' 2&=!4>' 4/';*>&;' (!>2.3' .2*5' A*(*' -/67*:;*1' !4' /(1*(' ./' 3*-0(*' .2*!(' 7*(3/4&;',(**1/6' ./' 3**D' .2*' 7(/.*-.!/4' /,' 3/6*' /6&4' -!.!Q*4' &' .*(6' A2!-2' !4' &4-!*4.' .!6*3' -/0;1' /4;5' 6*&4' &' 7&.(!-!&4' 2*' (*;&.!/4' .203' 3*.' /4' ,//.' A&3' -&;;*1' " $ ' &41' A&3' !42*(!.*1' <5' .2*' 1*3-*41&4.3' /,' </.2' 7&(.!*3' --/(1F !4>;5' .2*' -;!*4.' *4.*(*1' !4./' .2*' ,&6!;5' /,' 2!3' 7&.(/4' & " ' .//D' 2!3' >*4.!;*' 6&6*' &41' A&3' &16!..*1' ./' .&D*' 7&(.' !4' .2*' ,&6!;5' 3&-(!,!-*3' 2*' 7&.(/4' 6&1*' /=*(' ./' !!6' &' 7!*-*' /,' ;&41' &3' &' 6*&43' /,' 3077/(.' 7(/.*-.*1' 2!6' ,(/6' =!/;*4-*' (*7(*3*4.*1' 2!6' &.';&A' &41' <0(!*1' 2!6' &,.*(' 2!3' 1*&.2' 2*' -;!*4.' /4' 2!3' 7&(.' &--/67&4!*1' 2!3' 7&.(/4' &<(/&1' &41' /4' 6!;!.&(5'3*(=!-*' >&=*' 2!3' &1=!-*' !4' ;*>&;' &41' 1/6*3.!-' 6&..*(3' 041' 6&1*' &' -/4.(!<0.!/4',(/6'2!3'7(/7*(.5' !,' 2!3' 7&.(/4' A*(*' *41/A!4>' &' 1&0>2.*(' /(' 2&1' ./' <*' (&43/6*1' !4' A&(' /(' ./' 7&5' &',!4*' 2*' (*;&.!/4' <*.A**4' 7&.(/4' &41' -;!*4.' !3' &;3/' !:;03.(&.*1' <5' .2*' ,&-.' .2&.' 4*!.2*(' 7&(.5' -/0;1' <(!4>' &4' &-.!/4' &>&!43.' .2*' *.2*(' !4' &' -/0(.' /,' ;&A' /(' <*&(' A!.4*33' &>&!43.' 2!6' /(' =/.*' &>&!43.' 2!6' /(' &77*&(' &>&!43.' 2!6' &3' &1=/-&.*' ' 6&43' 10.5' ./' 2!3' -;!*4.' A&3' 6/(*' <!41!4>' .2&4' 2!3' 10.5' ./' 2!3' <;//1' (*;&.!/43'' &41' &45' =!/;&.!/4' /,' !.' A&3' (*>&(1*1' &3' &' -&7!.&;' /,,*4-*

2*4' *(=!03' 0;;!03' *0.*41*1' .2*' (!>2.3' "/,' -!.!Q*432!7' ./' .2*' -;!*4.3' &3' A*;;' &3' ./' .2*' 7;*<*!&43' .2*' </41' <*.A**4' 7&.(/4' &41' -;!*4.' 3.!;' -/4.!40*1' !4' ,/(-*' &;.2/0>2' !.' >(&10&;;5' (*;&0*1' A!.2' .2*' -/0(3*' /,' .!6*' .' .2*' *41' /,' .2*' (*70<;!-' &>*' .2*' /,' -;!*4.' !4' .2*' 7(/7*(' 3*43*' /,' .2*' A/(1' ;!&1' -*&3*1' ./' *0!3.' 41*(' .2*' 67!(*' .2*' " ' A&3' &' 6*(*' *0.*(4&;' (*;&.!/4' <*.A**4' .2*' (!-2' &41' .2*' 7//(' .2*' >(*&.' &41' .2*' /<3-0(*' .' !4=/;=*1' 4/' 6/(&;' /<;!>&.!/4' /4' *!.2*(' 3!1*' <0.' A&3' <&3*1' 6*(*;5' /4' .2*' =&4!.5' /,' .2*' /4*' 7&(.5' &41' .2*' 4*-*33!.5' /,' .2*' /.2*(' .' A&3' G4/' 04030&;' .2!4>' ./' ,!41' 7*/7;*' A2/' 2&1' 6/' 3*..;*1' 6*&43' /,' 30<3!3.*4-*' .(5!4>' <5' ,;&..*(5' &41' 3*(=!;*' <*2&=!/0(' ./' A!4' ,2*' ,&=/0(' /,' .2*' >(*&.' =*4' 72!;/3/72*(3' &41' 7/*.3' ;!D*' .&.!03' &41' &(.!&;' &(*' ,/041' !4' .2!3' 7/3!.!/4' 2*' -;!*4.' 7*(,/(63' -*(.&!4' 3*(=!-*3' -&;;3' /4' 2!3' 7&.(/4' !4' .2*' 6/(4!4>' &--/67&4!*3' 2!6' /4' 70<;!-' /--&F 3!/43' &41' !3' !4' .0(4' !4=!.*1' ./' 2!3' .&<;*' (*-*!=*3' 7(*3*4.3',(/6'2!6'&41'8!,' 2*' -&4' >*.' !.9' &' 3*..;*1' 7(/=!3!/4' 43.*&1' /,' !4=!.!4>' .2*!(' 406*(/03' -;!*4.3' .2*' (!-2

A/0;1' /,.*4' 7(*3*4.' .2*' 6' A!.2' &' 36&;;' 306' /,' 6/4*5'-&;;*1' ' 2*' (*;&.!/4' A&3' *4.!(*;5' &' ,(**' /4*' &41' -/0;1' <*' 1!33/;=*1' &.' 7;*&30!"*' <5' *!.2*(' 7&(.5

4' .2*' (*70<;!-&4'&>*' A2/;*' -/6604!.!*3' &41' *=*4' 7(/=!4-*3' A2*4' .2*5' 2&1' 30<F 6!..*1' ./' .2*' /6&45/D*' A/0;1' 3/6*.!6*3' <*-/6*' -;!*4.3' /,' &' 3!4>;*' " ' 4' .2!3' -&3*' .2*' " ' A/0;1' 030&;;5' <*' .2*' -/4:0*(!4>' >*4*(&;' &(-*;;03' ,/(' !43.&4-*' .2*' -/4:0*(/(' /,' 5(&-03*' &41' 2!3' 1*3-*41&4.3' A*(*' 7&.(/43' /,' !-!;5' 2*' 7(&-.!-&;' &1=&4.&>*3' A2!-2' A*(*' 3*-0(*1' ./' &' ,/(*!>4' -/6604!.5' <5' .2!3' 7*(6&4*4.' (*7(*3*4.&.!/4' &.' /6*' &(*' /<=!/03' -F -/(1!4>;5' A*' ,!41' .2&.' 041*(' .2*' 67!(*' *=*4' -!.!*3' A2!-2' .//1' ./' /6*' !4' 4/' (*;&.!/4' /,' 1*7*41*4-*' 30-2' &3' -/;/4!*3' &41' " ' 3/6*.!6*3' 3*;*-.*1' &' " ' 2*' " ' A&3' !4' 30-2' >&3*3' &;A&53' -2/3*4',(/6'&6/4>'.2*' 3*4&./(3' /(' ;!4*' 8 (' 7 Q" ' ' ')

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;;7"03' ' $

;!.&(-203' 8 (' (' ' (**D' 2!3./(!&4' 3/4' /,' .2*' 2!3./(!&4' !4/4' *' ,;/0(!32*1'&</0.' NN' '&41' A&3' .2*' &0.2/(' /,' &' >(*&.' A/(D' !4' &.' ;*&3.' .A*;=*' </!D3' 07/4' ;*0&41*(' .2*' (*&.' *' A&3' 4/F ./(!/03;5' 04.(03.A/(.25' &41' !4-;!4*1' ./' <*;!*=*' !4' .2*' 6&(=*;;/03*' ,!!3' 3.5;*' A&3' .0(>!1' &41' 2!>2;5' (2*./(!-&;*' <0.' 2!3' 4&((&.!=*' A&3' 3/' !4.*(*3.!4>' .2&.' 2*' A&3' .2*' 6/3.' 7/70;&(' /,' &;,' .2*' A(!.*(3' /4' ;*0&41*(' 2*' /6&43' A*(*' =*(5' ,/41' /,' 2!3' </!D' A2!-2' &3' !41**1' .2*' 6&!7' &0.2/(!.5',/(' .2*' 4&(.&.!=*3' /,' !/1/(03' (/>03' /67*!03' &41' 0(.!03' '406<*(' /,',(&>6*4.3' /,'!.' 3.!;' 30(=!=*

;!.03' &9 ' 8!4' (**D' 65.2/;/>59' /4' /,' &4'.!43' &41' >(&413/4' /,' *;&6703*' ;/=*1' &41' -&((!*1' /,' <5' /3' ' /3

;/&-&' '=&0;.*1' 30<.*((&4*&4'-2&44*;' ,/(' -&((5!4>' /,!,' 1(&!4&>*' /,' *=*(5'D!41' 3' *&(;5' &3' .2*' ".2' -*4.0(5' -' /6*' 2&1' &4' *0.*43!=*' 353.*6' /,' 3*A*(3',(' 1(&!4!4>' .2*' 6&(325'>(/041';5!4>'<*.A**4' .2*' 2!;;3' /,' .2*' -!.5' 5'.2!3' .2*' 3*A&>*' A&3' -&((!*1' !4./' &' 6&!4' 1(&!4' #$ ' - ' A2!-2' *67.!*1' !.3*;,' !4./' .2*' !<*(' &(.' /,' .2!3' 3*A*(' !4';*4>.2':0!.*' ! ' ,**.' !3' 3.!;;' !4' *0!3.*4-*' &41' &,.*(' &;&73*' /,' @ VNN' 5*&(3' >/*3' /4' ,0;,!;;!4>' !.3' /(!>!4&;' 70(7/3*' 2*' 3*A*(' A2!-2' !3' 4*&(;5' .A*4.5' ,**.' A!1*' !3' /=*(*1' <5' &' =&0;.*1' (/,' /,' 6&33!=*' 3:0&(*3' /,' .0,&' !4' A2!-2' &4' &(-2' /,' .(&F =*(.!4*' !3' !43*(.*1' &.' !4.*(=&;3' /,' !' ,**.' @' !4-2*3' 2*' /(!>!4&;' 2*!>2.' A&3' $N' ,**.' !4-2*3' <0.' 2&3' <**4' (*10-*1' ./' '' ,**.

(" !4-2*3 25 .2* &--060;&.!/4 /, ,!;.2 &41 (0<<!32 2* 1(&!4&>* 353.*6 /, /(4* A&3 -/43!1*(&<;5 *0.*41*1 *37*-!&;;5 <5 >(!77&!4 .2* 0>03.&4&>*

2* 10.5 /, D**7!4> .2* 3*A*(3 /, /(4* !4 (*7&!(, *;; /(!>!4&;;5 ./ .2* -*43/(3 0(F !4> .2* !67*(!& &>* !. A&3 .(&43,*((*1 ./ & 37*-!&; </&(1 .2* M !.!Q*43 A2/ A!32*1 ./ *3.&<;!32 & -/4F 4*0!/4 <*.A**4 .2*!(7(/7*(.5 &41 .2* -!.5 1(&!43 2&1 ./ 7&5 & 37*-!&; .&0 ./ .2* .&.* -&;;*1 $$

;/-D3 A*(* D4/A4 ./ .2* &4-!*4.3 /4;5" 041*(.2* ,/(6 /, 304"1!&;3 83** " 05 &41 A&.*("-;/-D3 83** " *

;/.2!4 2* 1(*33*3 /, .2* (**D3 361 /6&43 -/43!3.*1 /, 041*(>&(6*4.3 /(32!(.3 &41 077*(>&(6*4.3 /(6&4.;*3 2* (**D ("&41 .2* &.!4 " -/6 6/4 ./ </.2 6*4 &41 A/6*4 <*;/4> ./ .2* ,!(3 -;&33 3/ 1/*3 .2* / /, .2* /6&4 6&.(/4 A/(4 /=*(.2* " 2* (2 è "A&3 &4 077*(>&(6*4. A (4 !4 (**-* </.2 <5 6*4 &41 A/6*4 2* (**D &41 "&41 A*(* 077*(>&(6*4.3 .2* (: &41 "-/4,!4*1 ./ 6*4 &41 .2* ./ A/6*4 2* 077*(1(*33 /(4 !4 70<;!- ;!,* <5 & /6&4 -!.!Q*4 A&3 .2* : * (A&3 7*-0;!&(./ 6&((!*1;&1!*3 2*(* A*(* /.2*(1(*33*3 /, .2* 3&6* D!41 -/6 6/4;5 !4 03* &6/4> .2* /6&43 ,/(!43.&4-* .2* ' " & " " &41 :" (X .2* 1 &41 " A*(* -/4,!4*1 ./ 6!;!.&(5 3*(=!-* 8 ** ,/(,0(.2* 1*.&!;3 .2* &(.!-;*3 /4 .2* A/(13 !4 :0*3.!/4 9 (/03*(3 8 &.!4 (**D " -: A*(* /4;5 D4/A4 &3 A/(4 <5 .2* (!*4.&;3 &41 <5 .2* <&(<&(!&43 /, .2* /(.2 6/4> .2* /6&43 4/ /4* A/(* .2*6 <0. .2* 3/;1!*(3 3.&.!/4*1 !4 .2* 4/(.2*(4 1!3.(!-.3 4 A/(D3 /, &(. &--/(1!4>;5 ./03*(3 &41 .2* ;/4>"3;**=*1 (" &(* &4 !41!-&.!/4 /, <&(<&(!&4 -/3.06* 2* -03./6 /, A(&7K9!4> 07 .;!* -&;, &41 .2!>2 &3 &7(/.*-.!/4 &>&!43. .2* -/;1 A&3 1**6*1 *0-03&<;* !4 3!-D;5 &41 *;1*(;5 7*/7;* <&. A&3 .2/0>2.*,!,*6!" 4&.* !4 /.2*(3 2* A//; /, .2* 32**7 A&3 &. &;, .!6*3 .2* 3.&7;* 6&.*(!&, /(-;/.2 3.0,,3 !4*4 .2/0>2 D4/A4 ./ .2* (**D3 /, .2* /6*(!- &>* A&3 A/(4 -2!*,;5 <5 .2* ;/4!&43 &41 ;*33 3/ <5 .2* !42&<!.&4.3 /, (**-* (/7*(6/4> .2* /6&43 .2* 03* /, ;!4*4 A&3 6/3.;5 -/4,!4*1 ./ .2* >!(1;* .2/0>2 -/6 6/4 &6/4> .2* .&;!&4 .(!<*3 /.2 3*0*3 A/(* &;!4*4 >!(1;* # 1 "&41 A/6*4 &;!4*4 <(*&3." <&41 /6*4 A*(* .2* ,!(3./ *0-2&4>* A//, /(;!4*4 &41 .2!3 10(!4> .2* (*F 70<;!-&4 &>* !4*4 >&(6*4.3 ./(6*4 1/ 4/. &77*&((6.!; ;&.*(A2*4 .2* ,!4* >57.!&4 &41 7&4!32 ;!4*4"3.0,,3 <*-&6* & 37*-!&; &(.!-;* /, ;000(5 2* 1 A&3 &;A&53 6&1* /, A//; /../4"3.0,,* .// A*(* D4/A4 ./ .2* &4-!*4.3 &3 A*;; &3 .2* & 6&.*(!&; 6&1* A2/;;5 /(7&(.;5 /, 3!;D" <0. .2*3* A*(* 4/. -/6 6/4;5 03*1 04.!; .2* !67*(!&; .!6*3 &L F + /04.(5 ,/;D !4 (**-* &41 *37*-!&;;5 32*72*(13 -;/.2* .2*63*;=*3 !4 .2* 3D!43 /, &4!6&;3 *;!33*3 &77&(*4.;5 1!1 4/. -/6* !4./,&32!/4 04.!; .2* 67!(*

2* -/;/0(/, 1(*33*3 &6/4> .2* (**D3 &41 /6&43 A&3 6/3.;5 <0. <5 4/ 6*&43 *0-;03!=*;5 A2!.* /(7(&-.!-&; (*&3/43 .2* A/(D!4> -;&33*3 03*1 ./ A*&(3.0,,3 /, 1&(D -/;/0(*!.2*(4&.0(&; /(&(.!,!-!&; &(D -;/.2*3 A*(* A/(4 &6/4> .2* 077*(-;&33*3 !4 /6* /4;5 !4 .!6/, /6/4(4!4> /(<5 & 7*(3/4 &--03*1 <*,/(* .2* -/0(.3 /, ;&A /;/0(*1 1(*33*3 A*(* 70. /4 <5 6*4 !4 (**-* 6&!4;5 /4 ,*3.&; /--&3!/43 &41 <5 .2* /6&43 4/. &.; &; &5"-/;/0(*1 6&.*(!&;3 A*(* &.;, .!6*3 A/(4 <5 (**D ;&1!*3 &41 /,.*4 ./ <5 /6&4 ;&1!*3 &3 *&(;5 &3 .2* $3. -*4.0(5 .(/4> -/;/0(3 1/ 4/. &77*&(./ 2&=* <**4 ;!D*1 <5 .2* &4-!*4.3 2*5 A*(* ,&6!;!&(A!.2 3.(!7*3 7;&!13 &41 /.2*(7&..*(43 &3 A*;;* &3 A!.2 /(4&6*4.3 /, 4**1;*A/(D &41 &;; D!413 /, * 6<(/!1*(5 !.2 (*>&(1 ./ .2* ,!..!4> /, 1(*33*3 !. 32/0;1 <* /<3*(=*1 .2&. !. A&3 6/3.;5 .2* -03./6 ./ A*&=* .2*6 &--/(1!4> ./ 6*&30(* &41 .2*(* A&3 .2*(*F ,/(* 4/ 4*-*33!.5 &3 !4 6/1*(4 .!6*3 ,/(&(.!3.!- -0..!4> 2* &(. /, 3*A!4> &3 :0!.* 30</(1!4&.* &41 -/4,!4*1 6/3.;5 ./ 3.!.-2!4> ;*&=*3 ./>*.2*(,/(>&(;&413 .2/0>2 3;**=*1 >&(6*4.3 4/ 1/0<. (*:0!(*1 (&.2*(6/(* -&(* *4-* .2* ,&-. .2&. .2*(* A&3 4/ 30-2 .2!4> !4 &4.!:0!.5 &3 &3*7&(&.* .&!;/(!4> .(&1* 2* 4*-*33&(5 3*A!4> A&3 1/4* <5 .2* ;&1!*3 /, .2* 2/03* /(<5 .2*!(3;&=*3 &41 3/6*.!6*3 <5 .2* ,0;;(3 A2/3* <03!4*33 !. A&3 ./ 6*&30(* .2* 7!*-*3 /, -;/.2 ./ 3*;;* (*&15"6&1* >&(6*4.3 &41 ./ -;*&4 -;/.2*3 # >)

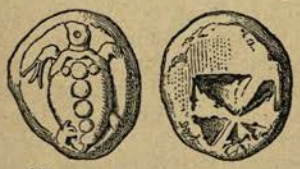
(2* (**D3 030&;;5 A*4. <&(*F ,/!. *0-*7. A2*4 /0. /, .2* 2/03* <0. .2*5 1!1 4/. .2!4D !. 4*-*33&(5 ./ A*&(32/*3 *=*4 !4 .2* 3.(**. 4 *4.*(!4> & 2/03* A2*.2*(/4* 3 /A4 /(4/. !. A&3 -03./6&(5 ./%04-/=*(.2* ,**. 2* 3!67;*3. ,/(6/, -/=*(!4> ,/(.2* ,**. &3/;* ,&3.*4*1 <5 3.(&73 &(: 2!3 !3 ./ <* 1!3.!4>0!32*1 ,(/6 .2* 3&41&; # " " " A2!-2 A&3 A/(4 /(!>!4&;;5 <5 A/6*4

2!3 A&3 & 6 /(* -/ 6 7;!-&.*1 3*. /, 3.(&73 (*&-2!4> &3 ,&(&3 /=*(.2* &4D;* A2*(* .2*5 A*(* ,&3.*4*1 2*5 3/ 6 *.!6*3 2&1 ;*&.2*(&11*1 &. .2* 3!1*3 &41 2**; 3/ &3 ./ (*3*6<;* & 32/* ;/3* 32/*3 /, =&(!/03 D!413 ,&3.*4*1 /=*(.2* ,//. A*(* &;3/ A/(4 <5 6*4 &41 A/6*4 2*(* A*(* <*3!1*3 3*=*(&;D!413 /, </ /.3 &6/4> A2!-2 6&5 <* 6*4.!/4*1 .2* " /"< &41 (& & "))

6/4> .2* /6&43 6*4 &41 A/6*4 A2*4 &. 2/6* &41 >*4*(&;;5 !4 7(!=&.* ;!,* A/(* & 3&41&; A2!-2 A&3 /4;5 .&D*4 /,, &. 6*&;3 <0. & (*37*-.&<;* /6&4 A/0;1 2&(1;5 32/A 2!63*;, <&(*F ,//.*1 /0./, 1//(3 !.2 .2* 1 A*4. .2* 32/* -&;;*1 /, A2!-2 .2*(* A*(* 1!,,*(*4.3 D!413 =&(5!4> &--/(1!4> ./ (&4D 83** " ( ) &1!*3 030&;;5 A2*4 /0./, 1//(3 A/(* 32/*3 /, A2!.* /(-/;/0(*1 ;*&.2*(A2!-2 ,/(6*1 &4 !67/(F .&4. 7&(./, .2*!(./!;*..* *37*-!&;;5 041*(.2* 67!(* A2*4 .2* 3*0*3 (!=&;;*1 *&-2 /.2*(!4 .2* 37;*41/0(/, .2*!(32/*3 .2* 6*4 &77*&(!4> !4 A2!.* &41 (*1 ;*&.2*(.2* *67*(/(&41 >(*&. 7*(3/4&>*3 A*&(!4> 32/*3 &1/(4*1 A!.2 >/;1 &41 *=*4 A!.2 (*A*;3 6/4> .2* /6&43 >*4*(&;;5 & >(*&.=&(!*.5 /, 32/*3 A&3 !4 03* 6&45 /, .2*6 </(((/A*1 ,(/6 /.2*(-/04.(!*3 & " $ ( ) //1*4 32/*3 & 2 G" A*(* A/(4 <5 3;&=*3 &41 7*&3&4.3 /(.2* 6!;!.&(5 </. !4 03* 041*(.2* 67!(* "

$ "1 ((2* 077*(-;&33*3 !4 (**-* &41 .&;5 >*4*(&;;5 A*4. <&(*2*&1*1 . A&3 /4;5 A2*4 ;/4> !4 .2* /7*4 &!(&3 /4 (0(4*53 /(A2!;* 204.F !4> /(!4 .2* .2*&.(* .2&. .2*5 03*1 .2* -&73 &41 2&.3 A/(4 <5 &(.!3&43 -/04.(5 ,/;D &41 ,!32*(6*4&)) $") 4 /6* ,/(7(/.*-.!/4 &>&!43. 304 &41 3./(6 .2*5 &1/7.*1 ,(/6 .2* 4/(F .2*(4 -/04.(!*3 .2* /(& 2//1 ,&3.*4*1 ./ .2* " /(2* 2*&1 A&3 /,.*4 7(/.*-.*1 !4 .2* -&3* </.2 /, 6*4 &41 A/6*4 <5 1(&A!4> .2* ./7 /,.2*>&(6*4./=*(.2* 2*&1 *3!1*3 D*(-2!*,3 &41 -&73 A/6*4 &;3/ A/(* =*!;3 A2!-2 !4 3/6* -&3*3 &3 &. 2*<*3 8&41 &* 4/A !4 .2* &3.9 -/=*(*1 .2* ,&-* &3 ,&(&3 .2* *5*3 /6&4 ;&1!*3 A/0;1 3*;1/6 &77*&(!4 .2*3.(**. 4-/=*(*1 -/66/4 -/=*(!4> A&3 .2* 3" A2!-2 &;3/ 3*(=*1 &3 & A(&77*(2!3 A&3 !4 ;&.*(.!6*3 /4;5 A/(4 &. (*;!>!/03 -*(*6/4!&;3 .A&3 &3:0&(* -;/.2 ,&3.*4*1 ./ .2* 2*&1 A2!-2 ;&1!*3 ,/;1*1 (/041 .2*6 .2(/A!4> !. /=*(.2* ;*,.&(6 &41 ;*,.32/0;1*(/(7(/.*-.!/4 &>&!43. .2* 304 ;&1!*3 -&((!*1 06<(*;;&3 8 (" &. (2 /(6&1* .2*!(3*(=&4.3 -&((5 .2*6 &43 8 ((&. A*(* ;!D*A!3* !4 /66/4 03* 2*3* A*(* 6&1* /, >&!;5"7&!4.*1 <!.3 /, A//1 &41 .2* ,*&.2*(3 /,7*&-/-D3 /(/.2*(<!(13 &41 A*(* >*4*(&;;5 !4 .2* 32&7* /, ;*&=*3 " " !4>3 A*(* !4 ,&32!/4 </.2 &6/4> 6*4 &41 A/6*4 2* /4;5 /.2*(6*.&; /(4&6*4.3 A2!-2 6*4 A/0;1 2&=* &45 /77/(.04!.5 ,/(A*&(!4> !4 /(1!4&(5 ;!,* A*(* .2* -;&373 /(<(//-2*3 & 03*1 ,/(,&3.*4!4>1(*33*3 /(>!(1;*3 2*3* A*(* /, </(4Q* 3!;=*(/(>/;1 &41 /,.*4 &1/(4*1 A!.2 -/3.;5 K*A*;3 *3!1*3 (!4>3 &41 -;&373 A/6*4 A/(* 4**1;*3 !4 .2*!(2&!(&41 *&("(!4>3 4*-D;&-*3 &41 <(&-*;*.3 /4 .2*!(A(!3.3 &41 &(63 3/6*.!6*3 *=*4 /4 .2*!(&4D;*3 2* .(!4D*.3 .2&.2&=* <**4 7(*3*(=*1 ,(/6 &4.!:0!.5 *02!<!. .2* >(*&.*3. -/4-*!=&<;* =&(!*.5 /, ,/(6 4* /, .2* -/66/4*3. ,/(63 ,/(& <(&-*;*. !3 .2&. /, & 34&D* 30((/041!4> .2* &(6 /4-* /(!4 3*=*(&, 37!(&; ! 4 *:0&; =&(!*.5 !3 /<3*(=&<;* !4 .2* /(4&6*4.&.!/43 /, 7*&(;3 7(*-!/03 3./4*3 &41 .2* ;!D* ;/.2/ 8 ($ (0. ;56,!4* 8 (: " 8!4 (**D 65.2F /;/>59 8$9 &0>2.*(/, &.(*03 e=!,* /, &07;!43 &41 6/.2*(/, &;&6*1*3 &) :) 8@9 &0>2.*(/, -*&403 &41 6/.2*(/, 2&*.2/4 <5 *;! 3 & ;5.660*3.(&8 (" * 6/(* -/((*-.;5 : &0>2.*(/, 54 1&(03 &41 A!,* /, B&6*64/4 !.2 .2* &!1 /, 2*(;/=*(B>!3.203 32* 60(F 1*(*1 2*(203<&41 &41 A&3 !4 .0(4 70. ./ 1*&.2 <5 2*(3/4 (*3.*3 & 3 & >) &41 5 ;5.!& & : 4 (**D 65.2/;/>5 &4 /-*&4 4566 72 <*;/=*1 <5 .2* 04">/1 A2/1 1*3*(.*1 2*(2* A&3 -2&4>*1 !4./ .2*2*;!/.(/7*&,;/A*(A2!-2 !3 3077/3*1 &;A&53 ./ .0(4!.3 2*&1 !4 .2* 1!(*-.!/4 /, .2*304 3 6/=*6*4. 1-&!03 & 4 (**D 65.2/F ;/>5 .2* D!4> /, &6!-..3 !4 !-!;5 A2/ >&=* &*1&;03 & ,(!*41;5 A*;-/6* A2*4 ,;5!4> ,(/6 .2* 70(30!./, !4/3 /-&;03 8/(2!3 1&0>2.*(3 &--/(1!4> ./ &4/.2*(&--/04.9 30,,/-&.*1 !4/3 !4 & 2/.<&.2 /-D",!>2.!4> 1 &.*41 /-5.03 8 (/ - & = 1*67.;/ (/7*(B H&K/!4. .&D!4> I 3/ H&K/!4.70(-2&3* I 4*/, .2*.2(**,/(63 /, 6&((!&>*&6/4> .2* /6&43 .A&3 3/

system of coining money in existence. The various Greek standards of value were all developed—in several gradations, it is true—from the gold and silver standard of Asia Minor. It was not until a later time that the standard of the Persian gold money was in some cities transferred to the silver coinage. The proportion of gold to silver was commonly reckoned among the Greeks as 10:1, so that a gold piece weighing 2 *drachmæ* was = 20 silver *drachmæ*. But in commerce the proportion assumed was 12:1, and this was the average generally observed in the Roman empire. The measure of weight most commonly current was the *talent*, which contained 60 *minæ*. Like the talent, the *mina* was not a real coin, but a standard of measurement. The unit of coinage was the *drachma*, 100 drachmas being reckoned to the *mina*. The drachma, again, contained 6 obols. In ancient times the commonly accepted standard was that of Ægīna. The coins of the island of Ægina were stamped on one side with the figure of a tortoise, on the other side



(1) DIDRACHMON OF ÆGINA.
(B.C. 700-550.)

with a roughly executed incuse square. The largest silver coin was the *stătēr* or *didrachmŏn* (fig. 1), (=about 2*s*. 2*d*., the Æginētan drachma being =1*s*. 1*d*.). Solon abolished this standard in Attica, and introduced a lighter drachma equal to about 8*d*. The Attic talent (=6,000 *drachmæ*) was thus worth about £200, the mina about £3 6*s*. 8*d*. The silver coins of Attica bore on the front the head of Pallas, and on the

Archaic head of Athene. Owl.

(2) TETRADRACHMON OF ATHENS.
(Time of Persian wars.)

reverse the figure of an owl. The principal coin was the *tetradrachmŏn* or 4 *drachmæ* (fig. 2), the largest (which was only issued occasionally) the *dĕkadrachmŏn* or 10 *drachmæ*. The *dĭdrachmŏn* (2 *drachmæ*) was in like manner issued rarely. The *trĭōbŏlŏn* (3 obols), the *ŏbŏlŏs*, and the *hēmĭŏbŏlĭŏn* ($\frac{1}{2}$ obol) were small silver coins; the *tĕtartēmŏrĭŏn* ($\frac{1}{4}$ obol) the smallest of all. The Greek states always adopted a silver currency, gold being rarely issued. The largest gold piece was the *didrachmŏn* or golden *statēr* (=20 silver *drachmæ*). Besides this we find drachmas, triobols, obols, half-obols, quarter-obols, and even eighth obols in gold. The gold money most commonly current in Greece was, down to the Macedonian age, the royal Persian coin

(3) DARIC.

called *Dăreikŏs*, or Daric (fig. 3). It was stamped on one side with a crowned archer, on the other with an oblong incuse. This corresponded with the gold *stater* of Attica and of the cities of Asia Minor. Among these should be especially mentioned the *stater* of Cyzĭcus or the *Cyzicēnus* =28 silver *drachmæ*. The earliest copper coin issued at Athens was the *Chalkūs* = $\frac{1}{8}$ of a silver obol (440 B.C.). In the time of Alexander the Great the silver coinage stopped at the

Head of Apollo. Victorious *biga*.

(4) GOLD STATER OF PHILIP II OF MACEDON.

triobolos, and it therefore became necessary to represent the smaller fractions in copper. The silver money of Attica was in very general use, but the Attic standard was not adopted in Greece Proper. It spread westward, however, in quite early times. In the greater part of Sicily, and in Tarentum and Etruria, the coinage was from the first regulated in accordance with the Attic standard. But the wide diffusion of this standard was mainly due to the action of Philip II of Macedon and Alexander the Great. The former adopted it when introducing his gold coinage (*Philippus*, fig. 4),

the latter for his silver money (fig. 5). For even after Alexander's death this standard held its ground in the kingdoms of the

Head of Heracles. Zeus.

(5) TETRADRACHMON OF ALEXANDER THE GREAT.

Macedonian empire, except in Egypt, where the Ptolemies maintained the old coinage of the country. Macedonian influence extended the Attic currency into many other states, *e.g.* Epirus, the coasts of the Black Sea, and even Parthia. The largest Greek gold coin is the 20-*stater* piece of the Græco-Bactrian king Eucrătĭdēs, now preserved in Paris: the largest silver coins are the 10-*drachma* pieces of Athens, Syracuse (fig. 6) and Alexander the Great.

Hellenic coins are important as giving a grand and complete idea of the development of plastic art among the Greeks. In the Greek cities of Italy and Sicily, in particular, the art of stamping coins had attained considerable importance as early as the 5th century B.C., and in the 4th century with its life-like characterisations, and with the rich variety and noble perfection of its forms, it reached the highest degree of finish.

Female Head (Persephone or Arethusa). Quadriga and armour (prizes of victory).

(6) DECADRACHMON OF SYRACUSE. (about 400 B.C.)

(2) *Roman.* As in Greece, so in Rome, oxen and sheep were originally the medium of exchange. The oldest pecuniary fines were exacted in cattle, and the Latin word for money, *pĕcūnĭa*, is derived from *pĕcŭs*. In later times unwrought copper (*æs rŭdĕ*) given in pieces according to weight, took the place of oxen. Bars of cast copper marked on both sides with some figure (as of an ox, pig, or fowl) are said to have been introduced by king Servius Tullius, when he took in hand the regulation of weights and measures. The first demonstrable example of a coin is from the age of the decemvirs (about 450 B.C.). The unit of coinage was the *as* of cast copper, carrying the nominal weight of the Roman pound (*libra* = 12 *unciæ*, *see* fig. 7). The *as* (*æs grăvĕ*) bore the image of Janus: the coins representing its fractions were all stamped on the reverse side with the figure of a

Head of Janus. Prow of Ship.

(7) ROMAN AS OF CAST COPPER.

ship's prow. These were, *sēmis*, with the head of Jupiter = $\frac{1}{2}$ *as* or 6 *unciae*; *triens* with the head of Minerva, $\frac{1}{3}$ of an *as* =

unciæ; quadrans, with the head of Hercŭlēs, $\frac{1}{4}$ *as* = 3 *unciæ; sextans*, with the head of Mercury, $\frac{1}{6}$ *as* = 2 *unciæ; uncia*, with the head of *Roma*, $\frac{1}{12}$ *as*. As in the course of time the copper money became lighter, the smaller fractional coins were first struck, and afterwards all the fractions. This copper currency was calculated exclusively for the home trade, so that it was easily allowed to suffer a continuous depreciation, at first to 4, then to 2, after 217 B.C. to 1 ounce, after B.C. 89 to $\frac{1}{2}$ an ounce, and under the Empire even to $\frac{1}{4}$ an ounce. In 269 B.C. a silver currency was introduced, and a mint for it set up on the Capitoline Hill in the temple of Juno Mŏnēta. The silver fractional coins struck according to the Athenian and Sicilian standard were the *dēnārĭus*, somewhat higher in value than the

Roma. Castor and Pollux.

(8) DENARIUS.

(9) DENARIUS OF JULIUS CÆSAR.

Attic drachma (about $9\frac{1}{2}d.$, figs. 8 and 9) = 10 *assēs* of 4 ounces; the *quīnārĭus* = 5 *assēs*; and the *sestertĭus* = $2\frac{1}{2}$ *assēs*. These coins were denoted by the marks X. V. and II. S. (or $2\frac{1}{2}$) respectively (fig. 10). They all

Roma. Castor and Pollux.

(10) SESTERTIUS.

bore, on the upper side, the head of the goddess Roma with her winged helmet, and on the reverse the two Dioscūri on horseback. In later times Diana Victoria in her two-horse chariot, and Jupiter in his four-horse chariot, successively took the place of the Dioscuri. From the middle of the 1st century there was no fixed device for the reverse side. The *sestertius* was the equivalent of the old heavy *as*, which although long disused, survived as the standard of reckoning. Payments were generally made in *denarii*, but the account made up in *sestertii*, whence the word *nummus* (coin) was applied *par excellence* to the *sestertius*.

The reduction of the copper *as* to 1 *uncia* in 217 B.C. degraded the copper money to the position of small coin, and a silver currency drove out the copper. The *denarius* sank at the same time to the value of about $8\frac{1}{2}d.$, which it maintained till the time of Nero. The *denarius* was reckoned as = 15 asses, the *quinarius* as 8, and the *sestertius* (about $2d.$) = 4. At about the same period a temporary effort was made to introduce gold coinage. This movement was not taken up again till towards the end of the Republic, when Cæsar struck a large number of gold coins (*aurĕus*) equal in weight to $\frac{1}{40}$ of the Roman pound, and in value 25 denarii or 100 sestertii (nearly 23 shillings). No regular coinage was carried on in the time of the Republic, but the necessary money was minted as occasion required. This was done in Rome at the commission of the senate under the superintendence of certain officials entrusted with the duty. A permanent board of three persons (*trēs vĭri mŏnētālēs*) was at last appointed for the purpose. In the provinces money was coined by the Roman generals and governors. From the time of Augustus the emperor retained the exclusive privilege of coining gold and silver money, the copper coinage being left to the senate. The standard of the imperial coinage was the *aureus* of Cæsar, the weight of which sank (with many variations) lower and lower as time went on, till in 312 A.D. Constantine fixed it at $\frac{1}{72}$ of a lb. (= between

(11) AUREUS OF MARCUS AURELIUS.

12 and 13 shillings, fig. 11). The *aureus* was now called *sŏlĭdus*, and was stamped at first with the Latin mark LXXII, afterwards with the Greek OB (=72). It continued in use until the fall of the Byzantine empire. Of the silver coins of the Republic the *denarius* and *quinarius* alone held their ground under the Empire, the rest being stamped in copper. The *denarius* retained the value fixed 217 B.C. (about $8\frac{1}{2}d.$)

G04.!;' .2*' .!6*'/,' *(/'041*(' A2/!4'!.' ,*;-;' !4' A*!>2.' &41' 70(!.5' .!:;' !.3' "(&;0*' A&3' /4;5'3!07*4-*' 0(!4>' .2*' @41' -*4.0(5'!.' !3&4D' ./'%' ¢2*;7A' .2*' 2&;','/,' !.3' ,/(6*(' "=&;0*' &41' .2*' 3!;=*(' -/!4&>*' A&3' -/73*" G:0*4.;5' 2&4>*1'!4./'36&;' 6/4*5' !/-;*" !'!&4' A&3' .2*',!(3.' ./'(*3./(*' 3/6*'/(1*(' ./' 2*' -0((*4-5' ,.*(' @T@' 2*' !330*1' &' %-/!4# 1 " '/,'70(*' 3!;=*(' &41' *A&;' !4' A*!>2.' ./' .2*' *(/4!&4' " 2*' Y 1 " 6&!4.&!4*1' !.3' >(/041' .!;;' R?N" 'A2*4'!.' 6&1*' A&5',/(' &'4*A'353.*6'/,' G3!;=*(-/!4&>*'/4' .2*' 3.&41&(1',/' .2*' >/;1' 2*' -/77*(' -/!43' </(*' .2*' 6&(D # " $ " <*-&03*'!330*1' <5' .2*'3*4&.*' 41*(' .2*' 67!(*' .2*',/;;/A!4>' 36&;' -/!43' A*(*' 6!4.*1" .2*' _C' " _@' !' </.2' /,' <(&33" .2*' &4' &41' .2*' 2 " ' </.2' /,' -/77*(' 2*3*' ;&3.' A*(*' .2*' 36&;;*3.' -2&4>*' 2*' " ' A*4.'/0.'/,'03*' &3' *&(;5'&3' (&K&4'&.' .2*' <*>!44!4>' /,' .2*' @41' -*4.0(5' 7 ' .2*' " ' ' &41' ' !4' .2*' 6!1- *' &41' .2*' ' !4' .2*' ;&3.' 2&;,' /,' .2*' (1' -*4.0(5' A2*4' !/-;*.!&4' !330*1' .A/' 4*A'-/77*(' -/!43'/4*' /,' A2!-2' A&3' -&;;*1' " /;&-(*.6'8 (' ' ,!4&4-!&;' </&(1' &.' .2*43' A2/3*' 10.5' !.' A&3' ./' &1 6!4!3.*(' .2*',041' &--(0!4>',(/6' .2*',!4*3' .&D*4' !4' .2*' -/0(.3' /,'K03.!-*' .' A&3' .2!3' ,041' ,(/6' A2!-2' .2*' -/3.' 7,' .2*' 70<;!-' 6*&;3' !4' .2*' (5.&4*06' &41' .2*'3&;&(5' /,' .2*' ,*:;&3.3*' A&3' 1*,(&5*1' 2*' 4&6*' 7(/7*(;5' 6*&43' H -/;;*-./(3' /,' 2&63 I' &41' 7(/<&<;5'7/!4.3' ./' .2*' ,&-.' .2&.' .2*' 2&63' /,' .2*'=!-.!63'3&-(!,!-*1'/4'-*(.&!4'/--&3!/43' A*(*' >!=*4' ./' .2*' $ ' &3' -/4.(!<0F .!/43' ./' .2*' 6*&;3'!4' :0*3.!/4 /;;>!06' 2*'>*4*(&;' .*(6'!4' &.!4',/(' &4' &33/-!&.!/4' 2*'A/(1' A&3' &77;!*1' !4' &1!,,*(*4.' 3*43*' ./' *07(*33' .2*' 60.0&;'(*;&F .!/4' /,' 30-2' 6&>!3.(&.*3' &3' HA*(*' 1 ' *3!1*3' .2*' 1 ' /,' .2*' >(*&.' 7(!*3.F 2//13' &41' /,' .2*' 6&>!3.(&.*3' &..*41&4.3' ' ' .2*(*' A*(*' 406*(/03' &33/-!&.!/43' A2!-2' &;.2/0>2' 4/.'04!.*1' <5' &45' 37*-!,!-&;;5' (*;!>!/03' /<K*-.3' 2&1' &(*;!>!/03' -*4.(*'!4'.2*' A/(32!7' /,'3/6*'1*!.5' /(' /.2*(' 0-2' A*(*' .2*' 406*(/03' 1 ' /,' &(.!3&43' & ' /(' &41' .2*' 3/-!*.!*3' *0!3.!4>' &6/4>' .2*' 7//(',/(' 7(/=!1!4>',04*(&;3'A2!-2',!(3.'&77*&('041*(' .2*' 67!(*' 2*' 7/;!.!-&;' -;0<3' # 1 ' / " ' A*(*' &33/-!&.*1' !4' .2*' A/(32!7' /,' .2*' ' $ ' &41' A*(*'!41**1' 7(/7*(;5'37*&D!4>' 1 ' /(' H'3/-!*.!*3' /,' .2*' -(/33"A&53 I' 2*'(*;!>!/03 3/-!*.!*3' A*(*'!4'3/6*'!43.&4-*3'*3.&<;!32*1' <5' .2*' .&.*',/(' .2*' 7*(,/(6&4-*' /,' -*(.&!4' 70<;!-'(*;!>!/03' 3*(=!-*3' 9 ' $ ' !4' /.2*(' -&3*3' .2*5' A*(*',/(6*1' <5' 7(!=&.*' !41!=!10&;3' A2/'6&1*' !.' .2*!(' <03!4*33' ./' D**7' 07' .2*' 32(!4*3' /,' 7&(.!-0;&(' 1*!.!*3' 8/,.*4',/(*!>4'1*!.!*39' &.' .2*!(' / A4' *07*43* /;;0.203'8 (' (! ' ' (**D' 7/*.' 4&.!=*' /,' 5-"7";!3'!4' 77*(' >57.'A2/' ,;/0(!32*1' &.' .2*' <*>!44!4>' /,' .2*' ".2' -*4.0(5' ' *' A(/.*' &4' 04!6 7/(.&4.' *7!-' 7/*6' !4' RRV' =*(3*3' /4' .2*' (&7*' /,' *;*4' !4' A2!-2' 2*' ,/;;/A*1' .2*' -5-;!-' 7/*.3

1;/4;'8H'-0;.!=&./(3'I9' 0(!4>'.2*' ;&.*(' !67*(!&;' &>*' .2*' " ' A*(*' 3*(,3' A2/' /4' 7&56*4.'/,' &' -*(.&!4' (*4.'-0;.!=&.*1' &' 7!*-*' /,' ;&41'<*;/4>!4>'./'.2*!(' 6&3.*!3',/(' .2*!(' /A4' 7(/,!.' 2*5' A*(*' 3/' (1" .(**' .2&.' .2*5'-/0;1' 4/.' <*'3/;1'-/0;1'-/4.(&-.' ;*>&;' 6&((!&>*3' &41' -/0;1' /A4' 7(/7*(.5' 0.' .2*5' A*(*' &<3/;0.*;5' </041' ./' .2*' *3.&.*' &41'!,' .2!3' A&3' 3/;1'7&33*1' A!.2' .2*' (*3.'/,' A2&.' A&3' 07/4'!.' ./' .2*' 4*A' /A4*(' 2*' " '@ ' 7(/<&<;5'.2*' 1*3-*41&4.3' /,' <&(<&(!&43' A2/' A*(*' 3*..;*1'!4'.2*' 7(/F =!4-*3',/(' &>(!-0;.0(&;' 70(7/3*3 /;/4!*3' 8$9' 6 ' 4' (**-*' -/;/F 4!*3' A*(*'3/6*.!6*3',/041*1'<5'=&4:0!32*1' 7*/7;*3' A2/';*,.'.2*!(' 2/6*3'./'*3-&7*'30<F K*-.!/4' &.' .2*' 2&41' /,' &' 1*.*3.*1' *4*65*" 3/6*.!6*3' &3' &' 3*:0*;' ./' -!=!;' 1!3/(1*(3" 3/6*.!6*3'./' >*.' (!1',' 30(7;03'7/70;&.!/4' &41' .2*(*<5'./' &=/!1' !4.*(4&;' -/4=0;3!/43' 0.'!4'6/3.' -&3*3' .2*' /<K*-.' A&3' ./' *3.&<F ;!32' &41',&-!;!.&.*' (*;&.!/43' /,' .(&1*' A!.2' /(*!>4'-/04.(!*3' ,' &' (**D'-!.5'A&3'3*41F !4>' /0.'&'-/;/45'&4' /(&-;*'8<*,/(*'&;' /.2*(3' .2&.' /,' *;72!9' A&3' &;6/3.' !4=&(!&<;5' -/4F 30;.*1' /6*.!6*3' -*(.&!4' -;&33*3' /,' -!.!F Q*43' A*(*' -&;;*1'07/4' ./' .&D*' 7&(.' !4' .2*' *4.*(7(!3*3' 3/6*.!6*3' /4*' 3/4' A&3' -2/3*4' <5';/.',(/6' *=*(5'2/03*' A2*(*' .2*(*' A*(*' 3*=*(&;' 3/43" &41' 3.(&4>*(3' *07(*33!4>' &' 1*3!(*' ./' K/!4' A*(*' &16!..*1' ' 7*(3/4' /,' 1!3.!4-.!/4' A&3' 3*;*-.*1' ./' >0!1*' .2*' *6!F >(&4.3' &41' 6&D*' .2*' 4*-*33&(5' &((&4>*F 6*4.3' .' A&3' 030&;' ./' 2/4/0(' .2*3*' ,/041*(3' /,' -/;/4!*3' &,.*(' .2*!(' 1*&.2' &3' 2*(/*3' /6*' /,' .2*' 3&-(*1',!(*' A&3' .&D*4' ,(/6' .2*' 70<;!-' 2*&(.2' !4' .2*' / $ &41' .2*' ,!(*' /4' .2*' 70<;!-' 2*&(.2' /,' .2*' 4*A' -!.5' A&3' D!41;*1' .2*(*&.' 41'K03.' &3'*&-2' !41!=!10&;' 2&1' 2!3' 7(!=&.*' 32(!4*3' 3/' .2*' 4*A'-/6604!.5'6&!4.&!4*1' .2*' A/(32!7' /,' !.3'-2!*,' 1/6*3.!-' 1*!.!*3' .2*' -/;/45' 3*41F !4>' *6<&33!*3'&41'=/.!=*'B,.3'./' .2*!(' 7(!4F -!7&;',*3.!=&;3' 2*' (*;&.!/4' <*.A**4' -/;/45' &41' 6/.2*("

city was viewed as one of mutual affection. Any differences that arose were made up, if possible, by peaceful means, war being deemed excusable only in cases of extreme necessity. The charter of foundation contained general provisions for the arrangement of the affairs of the colony, and also some special enactments. The constitution of the mother-city was usually adopted by the colony, but the new city remained politically independent. If the colony sent out a fresh colony on its own account, the mother-city was generally consulted, or was at least requested to furnish a leader. The *Clērūchī* formed a special class of Greek colonists (*see* CLERUCHI). The trade factories set up in foreign countries (in Egypt, for instance) were somewhat different from the ordinary colonies, the members retaining the right of domicile in their own fatherland.

(2) *Roman.* It was an old custom in Italy to send out colonies for the purpose of securing new conquests. The Romans, accordingly, having no standing army, used to plant bodies of their own citizens in conquered towns as a kind of garrison. These bodies would consist partly of Roman citizens, usually to the number of three hundred, partly of members of the Latin confederacy, in larger numbers. The third part of the conquered territory was handed over to the settlers. The *coloniæ cīvĭum Rōmānōrum* (colonies of Roman citizens) were specially intended to secure the two sea-coasts of Italy, and were hence called *coloniæ marĭtĭmæ*. The *coloniæ Latīnæ*, of which there was a far greater number, served the same purpose for the mainland.

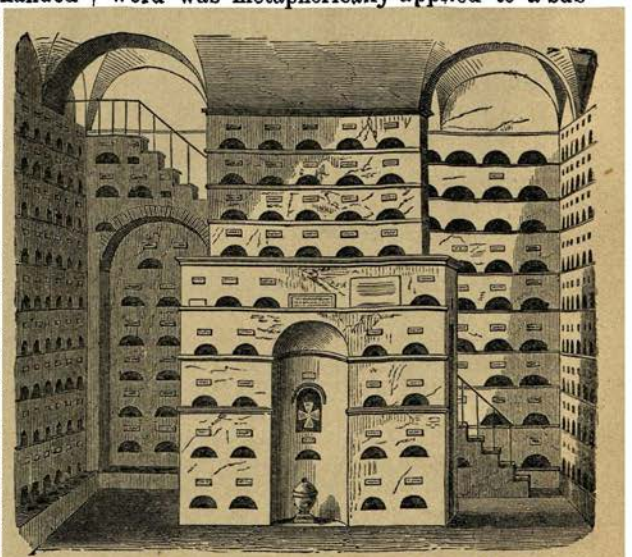
The duty of leading the colonists and founding the settlement was entrusted to a commission usually consisting of three members, and elected by the people. These men continued to stand in the relation of patrons (*patrōnī*) to the colony after its foundation. The colonists entered the conquered city in military array, preceded by banners, and the foundation was celebrated with special solemnities. The *coloniæ* were free from taxes, and had their own constitution, a copy of the Roman, electing from their own body their senate and other officers of state. To this constitution the original inhabitants had to submit. The *coloniæ civium Romanorum* retained the Roman citizenship, and were free from military service, their position as out-posts being regarded as an equivalent. The members of the *coloniæ Latinæ* served among the *socii*, and possessed the so-called *ius Latinum* (*see* LATINI). This secured to them the right of acquiring property (*commercium*) and settlement in Rome, and, under certain conditions, the power of becoming Roman citizens; though in course of time these rights underwent many limitations.

From the time of the Gracchi the colonies lost their military character. Colonization came to be regarded as a means of providing for the poorest class of the Roman populace. After the time of Sulla it was adopted as a way of granting land to veteran soldiers. The right of founding colonies was taken away from the people by Cæsar, and passed into the hands of the emperors, who used it (mainly in the provinces) for the exclusive purpose of establishing military settlements, partly with the old idea of securing conquered territory. It was only in exceptional cases that the provincial colonies enjoyed the immunity from taxation which was granted to those in Italy.

Cŏlossēum. *See* AMPHITHEATRE.

Cŏlossus of Rhodes. *See* CHARES.

Cŏlumbārĭum. Properly a dove-cote. The word was metaphorically applied to a sub-



COLUMBARIUM OF THE FREEDMEN OF OCTAVIA.
(Near the *Porta Latina*, Rome.)

terranean vault provided with rows of small niches, lying one above the other, and intended for the reception of the urns contain-

!4>' .2*' &32*3' /,' .2*' 1*&1' 2*3*' ;&(>*' <0(!&;' 7;&-*3' A*(*' <0!;.' <5' (!-2' 7*/7;*' A2/3*' ,(**16*4' A*(*' .//' 406*(/03' ./' <*' !4.*((*1' !4' .2*',&6!;5' <0(!&;"7;&-*' 2*5' A*(*' &;3/' *(*-.*1' <5' .2*' ,*3&(3' ,/(' .2*!(' 3;&=*3' &41',(**16*4' *=*(&;' /,' .2*3*' 3.!;;' *0!3.' ,/(' !43.&4-*' .2&.' /,' !=!&' .2*' -/43/(./,' 0>03.03' A2/' <0!;.' /4*' ,/(' 2*(' ,(**1"6*4' /4' .2*' 77!&4' (/&1"/66/4' <0(!&;"7;&-*3' !4' A2!-2' &' 4!-2*' -/0;1' <*' <*37/D*4' <*,/(*2&41' A*(*' 3/6*.!6*3' -/43.(0-' <5' 7(!=&.*' !41!=!10&;3'4'37*-0;&.!/4',/(' 7*/7;*' A2/' A*(*' ./' 7//(' ./' 2&=*' &' >(&=*' /,' .2*!(' /A4' $ ' A*(*' 030&;;5' <0!;.' <5' (*F ;!>!/03' /(' 6*(-&4.!;*' 3/-!*.!*3K /(' <5' <0(!&;' -;0<3' ,/(' .2*!(' A4' 6*6<*(3' 4' 30-2' -&3*3' .2*' 6*6<*(3' -/4.(!<0.*1' &' 3!4>;*' -&7!.&;' 7&56*4.' &41' 5*&(;5' 30<3-(!7.!/43' A2!-2' >&=*' .2*6' .2*' (!>2.' ./' &' 1*-*4.' <0(!&;' &41' &' 4!-2*' !4' .2*' =&0;.' 2*' 4&6*3' /,' .2*' 1*&1' A*(*' !43-(!<*1' /4' 6&(<;*' .&<;*.3' /=*(' *&-2' 4!-2*' # ' -0.9

1 6*;;&' # ' '"" ' . '

' &.!4' A(!.*(' /4' &>(!-0;.0(*' *' A&3' &' 4&.!=*' /,' &1*3' !4' 7&!4' &41' &' -/4.*6F 7/(&(5' /,' 2!3' -/04.(56&4' .2*' 72!;/3/72*(' 4,!-&' *' A&3' .2*' &0. ' /,' &' .2/(/0>2' &41' *02&03.!=*' A/(D' /4' &>(!-0;.0(*#5 ' ' A2!-2' 2*' ,/041*1' 7&(.;5' 07/4' &' 3.015' /,' &;;' 7(*=!/03' A/(D3' /4' .2*' 30<K*-.' 7&(.;5' /4' 2!3' /A4' *07*(!*4-*' >&.2*(*1' !4' 7&!4' .&;5' &41' 3!&' 2*' A/(D' A&3' A(!..*4' &</0.' ?N' '&41'-/43!3.3'/,' .A*;=*' </!D3' &((&4>*1' &3' ,/;;/A3ǁ " ' /4' -(/73' &41' 7&3.0(*3" " ' /4' .(**3' &41' =!4*F 5&(13'" "] ' /4' -&..;*' <!(13' ,!32*3' &41' <**3"] "] ' /4' 2/(.!-0;.0(*"] "] ' /4' .2* 10.!*3' &41' /--07&.!/43' /,' .2*' ,&(6*(' 2* .*4.2'</D'!3'A(!..*4'!4'7/;!32*1'2*0&6*.*(3' &3' &' 3077;*6*4.' ./' *(>!;3' ,/0(.2' */(>!-' 2!3' /;06*;;&'1!1'&.' .2*'(*:0*3.'/,' 0<;!03' !;=!403' ./' A2/6' .2*' A2/;*' A/(D' !3' 1*1!F -&.*1' *3!1*3' .2!3' 2!3' >(*&.' A/(D' /;06*;;&' 2&1' 7(*=!/03;5' A(!..*4' &' 32/(.*(' .(*&.!3*' /,' A2!-2' .2*' 3*-/41' </!D' /4' .(**3' #5 ' ' 3.!;;' 30(=!=*3' /;06*;;&' 3' *07/3!.!/4'!3'-;*&('&41'*&35'&41'2!3';&4>0&>*' 8!,' A*' 7&33' /=*(' .2*' (2*./(!-&;' /(4&6*4.3' &11*1'&,.*(' .2*',&32!/4' /,' 2!3' .!6*9' -/((*-.' 2*' .*4.2' </!D' .2/0>2' A(!..*4' !4' =*(3*' 2&3' !.' 603.'<3' 3&!1' ;!..;*' 7/*.!-&;' 6*(!.

B;064&' /3.(&.&' ' ! -(63' 5 ' =

/63*.21' 8 (' 7 (I' 4' (**D' 65.2/;/>5' .2*' 1&0>2.*(' /,' .>(;&..3' D!4>' /,' .2*' *;?<? ' *(' ,&.2*(' 2&1' &' >/;1*4' ;/-D' !4' 2!3' 2&!.K >!=*4' 2!6' <5' 3*!1 4' &41' -/4,*((!4>' !66/(.&;!.5' ,' .2!3' 2*' A&3' 1*7(!=*1' <5' 2!3' 1&0>2.*(' A2/' A&3 3;&!4',/(' 2*(' .(*&-2*(5'<5' 672!.(B<4' .2*' *4*65'/,' 2*(' (&-*' # ' & * /6*15' 8$9' 6 ' 2*' (**D'-/6*15' ;!D*' .2*' (**D'.(&>*15'&41'3&.5(!-'1(&6&' 2&1'!.3'/(!>!4'!4'.2*',*3.!=&;3'/,' ;; 45303' 3'!.3'4&6*' '/(' .2*' 3/4>' /,' .2*' !67;!*3'!.' &(/3*' ,(/6' .2*' 4(*F 3.(&!4*1'3!4>!4>'&41K*3.!4>'-/66/4'!4'.2*' /(' 6*((5'7(/-*33!/4' /,' ! 45303' --/(1!4>'./'.2*'.(&1!.!/4'!.'A&3'.2*' /(!-!42&<!.&4.3'/,' *>&(&' *;;'D4/A4',/(' .2*!(' ;/=*' /,',04'A2/'!(3.'A/(D*1'07'+ K/D*3' !4./' &' D!41' /,',&(-*' 2*' !42&<!.&4.3'/,' *>&(&'&--/(1!4>;5'</&3.*1'.2&.'.2*5'A*(*' .2*' ,/041*(3' /,' (**D' -/6*15' (/6' *>&(&'!.'A&3'3077/3*1'.2*'7/70;&(',&(-*' ,/041' !.3' A&5' ./' .2*' /.2*(' /(!&4' -/6F 604!.!*3' &41' /4*' 03 (;/4' A&3' 3&!1' ./' 2&=*' .(&437;&4.*1'!.' ./' .2*' ..!-' 1*6*' /,' -&(!&' &</0.' ?RN' /' /',0(.2*(' !4,/(6&F .!/4' !3' !4' *0!3.*4-*' &3' ./' .2*' 4&.0(*' /,' .2*' *>&(!&4' /(' /(!&4' 7/70;&(' -/6*15' 2*' ;/-&;' /(!-',&(-*' A&3' 1*=*;/7*1'!4./;!.*(&(5' ,/(6'!4' !-!;5' <5' 7!-2&(603' /,' V3'8&</0.' VCN"CVN' 9' 2!3' A(!.*(' >&=*' &' -/6!-' .(*&.6*4.' 4/./' /4;5' ./' 65.2/;/>5' <0.' ./' 30<K*-.3' .&D*4',(/6' (*&;' ;!,*' 2*' -/4F .*67/(&(5' /,' 7!-2&(603' 2/(603' /(' 2/(6!3' &41' 2!3' 707!;' !4/; -203' 6&5' &;3/' <*' 4&6*1' &3' (*7(*3*4.&.!=*3' /,' .2*' /(!&4'-/6*15

2*'<*>!44!4>3' /,' .2*' ..!-'-/6*15';!D*' .2/3*' /,' .2*' ..!-' .(&>*15'&(*' &33/-!&.*1' A!.2'.2*'1*6/',' -&(!&'D4/A4'./'2&=*'<**4' .2*' -2!*,'3*&.' /,' .2*' A (32!7' /,' ;J45303' !4' ..!-&' /.' /4;5' 2*37!3' .2*',&.2*(' /,' .(&>*15'<0.'&;3/' 2! 4 1*3' &41' &>4*3' 8&</0.' VVN' ' (' A2/' !,' .2*' 3./(5' 6&5' <*' .(03.*1',!(3.'>&=*' &' 6/(*' &(.!3.!-',/(6' ./' .2*' *>&(!&4' -/6*15' !4.(/10-*1' <5' 03&(!/4' *(*' 4&.!=*3' /,' -&(!&' /6*15' 1!1' 4/.' <*1/6*' !4' .2*' 7(/7*(' 3*43*' &' 7&(./,' ;!.*(&.0(*' 04.!;' !.' 2&1',/041' A*;-/6*' &41'-/43!1*(&.!/4'&.' .2*43' !4' .2*' .!6*/,' <**4' (

;!&1 (*&-2*1 !.3 2!>2*3. 1*=*;/7 6 *4. 2*3* .2(** 6&3.*(3 2&1 6&45 (!=&;3 A2/ ,*;; 2/A*=*(/4 .2* A2/;* <*4*&.2 .2*!(;*=*; &6/4> /.2*(3 2*(*-(&.*3 *(6!7703 *; -;!1*3 2(54!-203 6*!73!&3 ;&./ &41 2*/7/6703

 >//1 !1*&/, .2* -2&(&-.*(!3.!-3/, .2* ;1 /6*15 6&5<* ,/(6*1 ,(/6 .2** *;*=*4 30(=!=!4> 7;&53 /, (!3./72&4*3 2* (**D .(&>*15 2&3 &6*&4!4>,/(&;; .!6* <0. .2* ;1 /6*15 .2* 6/3. <(!;;!&4. &41 3.(!D!4> 7(/10-.!/4 /, &;; .2*4!&4 ;!.*(&.0(* 2&3 !.3 (//.3 !4 .2*4!&4 ;!,* &41 &11(*33*1 .2* .2*4!&4 70<;!-/4;5

&;!4> ,(/6 .2 =*(5 ,!(3. A!.2 .2* >(/.*3:0* &41 &<30(1 3!1* /, .2!4>3 !. A&3 .2* 3-/0(>* /, &;; =!-/ ,/;;5 &41 A*&D4*33 2* 3/-!&;; ;!,* /, .2*43 3/ (*3.;*33 &41 5*. 3/ /7*4 /,,*(*1 &4 !4F *02&03.!<;* 3./(* /, 6&.*(!&; &41 .2* -/6*1!&4 A&3 &;A&53 30(* /, & A!..5 ;&0>2.*(";/=!4> 70<;!- /4 A2/6 4/ &;;03!/4 A&3 ;/3. 2* ,!(3. &!6 /, .2* .2*4!&4 -/6*15 A&3 4/ 1/0<. ./ 6&D* 6*4 ;&0>2 <0..2!3 A&3 4/.&;; *4*&.2!. .2*(* ;&5 & 3*(!/03 &41 7&.(!/.!-6/.!=* 2* 7/*. A2/ A&3 3*-0(*1 <5 .2* ;!-*43* /, .2* 3.&>* A!32*1 ./ <(!4> ./ ;!>2. &41 .0(4 ./ (!1!-0;* .2* &<03*3 &41 1*>*4*(&-5 /, 2!3 .!6* 2* ..!-/6*1!&43 &(* &;; &16!(*(3 /, .2* >//1 /;1 .!6*3 &41 &--/(1!4>;5 .2* 1*-;&(*1 *4*6!*3 /, .2* 3/-!&; !44/=&.!/43 A2!-2 A*(* <*>!44!4> ./ 6&D* .2*!(A&5 .2* 3!>43 !4 6&45 -&3*3 4/ 1/0<. /, &7F 7(/&-2!4> 1*-;!4* . A&3 4/. 2/A*=*(.2* &-.0&; 72*4/6*4& /, ;!,* A2!-2 A*(* 3D*.-2*1 !4 .2* ;1 /6*15 2* ;&..*(!3 (*&;;5 & >(/.*3:0* &41 ,&4.&3.!-&(!-&F .0(*" .2* -/;/0(3 &(* ;&!1 /4 .2!-D &41 7(/7(!*.5 &3 A* 6/1*(43 041*(3.&41 !. !3 .2(/A4 ./ .2* A!413 2*3* 7;&53 &</041 !4 -/&(3*4*33 &41 /<3-*4!.5 /, .2* <(/&1*3. D!41 .2* 4&.0(&; 30(=!=&; /, .2* (01* ;!-*43* &;;/A*1 &. .2* !/453!&-, ,*3.!=&; 2* -2/!-* &41 .(*&.6*4. /, .2* 30<*-.3 32/A .2* 3&6* .*41*4-5 ./ .2* >(/.*3:0* &41 ,&4.&3.!- &4-5 &41 -&7(!-* (*=*; &. .2*!(A!;; !6-2*-D*1 <5 &45 (*>&(1 *!.2*(,/(.2* ;&A3 /, 7/*.!-&; 7(/<&<!;!.5 /(,/(&1*:0&-5 /, /--&3!/4 2* &-.!/4 !3 >*4*F (&;;5 :0!.* 3!67;* 3D*.-2*1 /0. !4 & ,*A <(/&1 3.(/D*3 &41 -&((!*1 /0. !4 & 6/.;*5 3*(!*3 /, ;//3*;5 -/44*-.*1 3-*4*3 2* ;&4>0&>* !3 &;A&53 -2/!-* &41 ,!4* 4*=*(;*&=!4> .2* ,/(63 /, .2* 70(*3. ..!-!36 2* 6*.(*3 &16!. & >(*&.*(,(**1/6 &41 6/=*6*4. .2&4 .2/3* /, .2* .(&>*15

 4;5*;*=*4 2&=* -/6* 1/A4 ./ 03 -/67;*.* .2* (*3. &(* !4 ,(&>6*4.3

 -/6*15 ;!D* & .(&>*15 -/43!3.*1 /, .2* 1(&6&.!- 1!&;/>0* A(!..*4 6/3.;5 !(!&6<!- " &41 .2*;5(!-&; -2/(03 2X 1!=!3!/4 /, .2* 1!&;/>0* !4./ 1 " &41 - &41 /, .2* -2/(0(!4./ &41 &(* .2* 3&6* & !4 .(&>*15 & * 0. A2!;* .2(.(&>!- -2/(03 -/43!3.*1 /, ,!,.**4 3!4>*(3 .2*(* A*(* .A*4.5",/0(!4 .2* -/6!- 7*-0;!&(!.5 /, .2* -/6!-2/(03 !3 .2* & 3*(!*3 /, ;!4*3 *4.!(*;5 04-/44*-.*- A!.2 .2* 7;/. !4 A2!-2 .2* 7/*. .2(/0>; .2* 6/0.2 /, .2* -2/(03 &11(*33*3 .2(70<;!-/ 1!(*-.;5 &</0. 2!3 /A4 -/4-*(43 (! 07/4 <0(4!4> :0*3.!/43 /, .2* 1&5 83-! !D* .2* .(&>*1!*3 .2* -/6* 1!*3 A*(* 7*(,/(6*1 &. .2* >(*&.,*3.!=&;3 /, !/45303 .2* !/453!& &41 *46& ! *&-2 /--&3!/4 ,!=* 7/*.3 -/67*.*1 ,/(.2(7(!Q* *&-2 A!.2 /4* 7;&5 /(32/(. .!6* /4;5 & ;!6!.&.!/42&1 <**4 70. 07/4 .2* &<3/;0.* ,(**1/6 A!.2 A2!-2 .2* 7/*.3 /, .2* D /6*15 ;&32*1 .2* 32/(.-/6!4>3 /, .2* >/=*(46*4. &41 !.3 -2!*, 6*4 2* 1/A4 ,&;; /, .2* 1*6/-(&-5 2/A*=*(1*7(!=*1 .2*6 /, .2!3 ;!<*(.5 2* 1!3&3.(/03 !330* /, .2* *;/7/44*3!& A&(2&1 6/(*/=*((0!4*1 .2* .2*4!& ,!4&4-*3 &41 6&1* !. 4*-*33&(5 ./ >!=* 07 .2* *07*43!=* -2/(03 &41 A!.2 !. .2* 203 1*7(!=*1 /, .2* 6*&43 /, *0!3.*4-* .2* ;1 /6*15 A&3 1//6*1 ./ *0.!4-./!4 4 !.3 7;&-* -&6* A2&. A&3 -&;;*1 .2* !11;* /6*15 ,(/6 &</0. CNN" R 5 2!3 A&3& 6/1!,!-&.!/4 /, .2* ;1 /6*15 A!.2 &(-2&(&-.*(-/((*F 37/41!4> ./ .2* &;.*(*1 -!(-063.&4-* /, .2* .!6* 2* !11;* /6*15 A&3 !4 4/ 3*43* 7/;!.!-&;" !. &=/!1*1 &; /7*4 &..&-D /4 !4F 1!=!10&;3 &41 -/4,!4*1 !.3*; . /. (*&.!4> .2* .57!-&; ,&0;.3 &41 A*&D4*33*3 /, 6&4D!41 .3 6&!4 ;!4* A&3 <0(;*3:0* &41 7&(/15 /, A2!-2 .2* /<*-.3 A*(* .2* .(&>*1!*3 &41 .2* 65.2/;/>5 !4 >*4*(&; . A&3 &;3/ 3*=*(* 07/4 .2* ;!=*3 /, .2* 72!;/3/72*(3 . 1*&; !4 .57!-&; -2&(&-.*(3 30-2 &3 <0;;!*3 7&(&3!.*3 &41 -/0(.*3&43 2* A(!.*(3 /, .2* !11;* /6*15 A*(* =*(5 7(/;!,!- 6/(* .2&4* !>2. 2041(*1 /, .2*!(7;&53 2&=!4>30(=!=*1 &3 ;&.* &3 .2* @41 -*4.0(5 2* 6/3.-*;*<(&.*1 /, .2*6 A*(* 4.!72` 4*3 /, .2*43 &41 ;*0!3 /, 20(!!" 4*0. ./ .2*3** -&6* 0<0;03 &41 4&0&41(!1&3 /, 2/1*3

 4*A 1*7&(.0(* !3 3!>4&;!Q*1 <5 .2* 1(&6&3 /, A2&. !3 -&;;*1 .2* *A /6*15 4 .2*3** &3 !4 .2* 6/1*(4 3/-!*.5 1(&6& ;!,* A&3 (*7(*3*4.*1 !4 !.3 6!40.*3. 1*.&!;3 2* *A /6*15 /,,*(*1 & 7;&5 (*>0;&(;5

G-/43.(0-.*1 ;!D* .2&. / , .(&>*15 -2&(&-F .*(!Q*1 <5 ,!4* 206/0(&41 <0. 3*;1/6 ./0-2!4>/4 70<;!-;!,* 2*;&4>0&>* A&3 .2&./ , /(1!4&(5 3/-!*.5 &41 .2* 7;/. A&3 A/(D*1 /0. !4 &-/44*-.*1 ,/(6 ,(/6 .2* <*>!44!4>./ .2* # 2* -2!*, &(./ , .2* 7/*.3 /, .2* &! /6*15 ;&5 !4 .2* 1*=*;/76*4./ , .2* 7;/. &41 .2* ,&!.2F ,0;7/(.(&!.0(* /, -2&(&-.*(2* 3./-D 30<*-.3 &(* !;;!-!.;/=*& ,,&!(3 ,/(2/4*3. A/6*4 ;!=*1 !4 (*.!(*6*4. &41 3./(!*3 /, 2/4/0(&<;*;/=* .2*(*,/(* A*(* 7(&-.!-&;;5 *0-;01*1 ,(/6 .2* 3.&>* 2* /(1!4&(5 -2&(&-.*(3 &(* 5/04> 6*4 !4 ;/=* ,&.2*(3 /, .2* >//1"4&.0(*1 /(.2* 3-/;1!4> .57* -044!4>3;&=*3 7&41*(3 7&(&3!.*3 &41 <(&>F >!4> /,,!-*(3 *3!1*3 .2* 1!&;/>0* 7(/7*(A* ,!41 .(&-*3 /, 7&(.3 A(!..*4 !4 ;5(!- 6*.(*3 ,/(.2* 2!>2*(3.5;* /, 3!4>!4> 2*3* A*(* !4 &;; 7(/<&<!;!.5 ;!D* .2* 1!&F ;/>0* 7*(,/(6*1 <5 .2* &-./(3 2* ,&.* /, .2* *A d(*3*6<;*3 .2&./, .2* !11;* /6*15 /4;5 & ,*A ,(&>6*4.3 -, !.3 406*(/03 7!*-*3 2&=!4> 30(=!=*1 , 3/6* /, .2*6 2/A*=*(A* 2&=* &.!4 &1&7.&.!/43 <5 ;&0.03 &41 *(*4-* .3 >(*&.*3. 6&3.*(A&3 *4&41*(<*3!1*3 A2/6 32/0;1 <* 6*4.!/4*1 !72;;03 2 6/4 2!;!77,1*3 /3!1!7743 &41 7/ <* 1<(03 /, &(53.03 G 2* *A /6*15 ,!/0(!32*1 ,(/6 N - .!;; ,&(!4./ .2* ,,(1 -*4.0(5 4 &</0. RNN .2* /;1 /(!&4 ,&(-* A&3 (*=!=*1 !4 &;!.*(&(5 ,/(6 !4 /0.2*(4 .&;5 <5 2!4.2/4 .2* -(*&./(/, .2* 1 2* 1 A&3 ,/(.2* 6/3.7&(. &7&(/15 /, .2* .(&>!- 3./(!*3 8@@ 7 "! !D*.2* (**D3.2* .&;!&4 7*/7;* 2&1 .2*!(7/70;&(,,(&6&.!- 7!*-*3* .2* A "" " ,/(!43.&4-* A2!-2 A*(* &. ,!(3. &33/-!&.*1 A!.2 .2* 6!6!- %1(&6&* ,!(3. !4.(/10-*1 !4 TN ,(/6 .(0(!& !4 -/43*:0*4-* /, & 7;&>0* ./ &77*&3* .2* A(&.2 /, 2*&=*4 # (!.; ! 1) (/6 .2!3 -/6<!4&.!/4 37(&4>.2* $&7*(,/(6&4-*-/43!3.!4> /, ,;0.*"7;&5!4> 6!6!- 1&4-* 3/4>3 &41 1!&;/>0* 2* " &1 A&3 &3*-/41 37*-!*3 /, 7/70;&(.&;!&4 -/6*15 1!3F .!4>0!32*1 ,(/6 /.2*(3 <5 2&=!4> -*(.&!4 ,;0*1 /(3./-D -2&(&-.*(3 2* -(*&./(/, .2* (*>0;&(.&;!&4 -/6*15 &41 .(&>*15 &3 & (**D 4&6*1 !=!03 41(/4!-03 &</0. @CN K " !D* .2* .&;!&4 .(&>*15 G.2* .&;!&4 -/6*15 A&3 !4 ,/(6 &41 /4F .*4.3 &4 !6!.&!/4 *0*-0.*1 A!.2 6/(* /(;*33 ,(**1/6 /, .2* (**D .A&3 .2* *A (**D /6*15 A2!-2 .2* ./6&43 ./D &3

.2*!(6/1*; 2!3 -/6*15 A40-4 (*7(*F 3*4.3 3-*4*3 ,(/6 (**D ;!,* A&3 -&;;*1 &,.*(.2* (**D !/(-;/&D 2* 1(&6&.!- &41 .2* " 2!-2 &,.*(A&(13 3077;&4.*1 .2* &3 &-/4-;01!4> ,&(-* -/4.!40*1 ./ *0!3. 3!1* <5 3!1* 2* &.!4 -/6*15 A&3 <(/0>2. ./ 7*(,*-.!/4 <5 ;&0.03 &41 *(*4-* .2* /4;5 /6&4 1(&6&.!3.3 ,(/6 A2/3* 2&413 A* 3.!;7/33*33 -/67;*.*,,!&53 *32/0;1 &;3/ 6*4.!/4 &*=!03 &41 44!03 8</.2 /, A2/6 A(/.* .(&>*1!*3 &3 A*;; &3 -/6*1!*39 &*-!;!03 &41 0(7!;!03 A!.2 A2/6 ./F A&(13 .2* *41 /, .2* 41 -*4.0(5 .2!3 3.5;* /, -/67/3!.!/4 1!*1 /0. </0. .2* 6!11;* /, .2* 41 -*4.0(5 - & 4*A D!41 /, -/6*15 .2* 1 8,(/6 1 6&1* !.3 &77*&(&4-* 2* ,/(6 /, !. &3 .!;; (**D <0. .2* ;!,* &41 .2* -2&(&-.*(3 .&;!&4 2* 1 &3 (*F 7(*3*4.*1 <5 !.!4!03 ..& &41 ,(&4!03 A2/A&3 &--/04.*1 .2* 6&3.*(!4 .2!3 D!41 /, A(!.!4> .2* <*>!44!4> /, .2* $3. -*4.0(5 .2* 3 " &330 6*1 &4 &(.!3.!- ,/(6 !4 .2* 2&413 /, /6 7/4!03 &41 <=!03 &41 3/6* ,!,.5 5*&(3 ;&.*(.2* &;3/ &4 /1 ,/(6 -, 7/70;&(,&(-* A&3 3!6!;&(;5 2&41;*1 <5 &<*(!03 &41 0<;!;!03 5(03 2* 1(/=*&;* .2* /.2*(=&(!*.!*3 /, -/6*15 ,(/6 .2* ,!*;1 &41 2*;1 !.3 >(/041 04.!;;&.* !4 .2* !6F 7*(!&;7*(!/1 2* /6&4 -/6*15 ;!D* !.3 6/1*; .2* *A /6*15 /, .2* (**D3 2&1 4/ -2/(03 .2* !4.*(=&3 <*!4> ,!;;*1 07 <5 7*(,/(F 6&4-*3 /4 .2* ,;0.* 2* 7;&5 -/43!3.*1 ;!D* .2* /6&4 .(&>*15 7&(.;5 /, 7&33&>*3 /, 37/D*4 1!&;/>0* !4 !&6<!- .(!6*.*(3 7&(.;5 /, 603!-&; 3-*4*3 -&;;*1 & " ( ) & 16!33&.!/ 0 16].;& 2* 7/70;&(&33*6<;!*3 /, .2* /6&43 306 6/4*1 &41 7(*3!1*1 /=*(<5 & 1 4 .2* .2* /6&4 7*/7;* &77*&(*1 &3 1!3.(!<0.*1 !4./ !.3 7/;!.!-&; 3*-.!/43 ,/(.2* 70(7/3* /, 1*F -!1!4> !4 .2* *0*(-!3* /, !.3 3/=*(*!>4 (!>2.3 07/4 .2* <03!4*33 <(/0>2. <*,/(*! 25 .2* 7(*3!1!4> 6&>!3.(&.* 2* 603. <* 1!3.!4>0!32*1 ,(/6 .2* " "! 2* " " A*(* &;3/ 306 6/4*1 &41 7(*3!1*1 /=*(<5 & 6&>!3.(&.* <0. .2*5 1!1 4/. &33*6<;* !4 .2*!(1!=!3!/43 &41 .2*5 2&1 4/.2!4> ./ 1/ <0. ./ (*-*!=* .2* -/6 60F 4!-&.!/43 /, .2* 6&>!3.(&.* 4 &;; !.3 &33*6<;!*3 &. /6* .2* 7*/7;* (*6&!4*1 3.&41!4> 2* /(!>!4&; 7;&-* /, 6**.!4> A&3 .2* & 7&(. /, .2* ,/(06 2*(* "A*(* .2(**D!..13 /, =!Q

$VC

$V?

.(0* '1/A4' ./' .2*' (1'-*4.0(5'& " ' 0.63' &*3&(' 2&1' 1*7(!=*1' .2*6' /,' .2*' (!>2.' /,' 1*-!1!4>' /4' A&(' &41' 7*&-*' 41*(' 0F >03.03' .2*5';/3.' .2*' 7/A*(' /,'K0(!31!-./!4' &41' 7(&-.!-&;;5' .2*' 7/A*(' /,' ;*>!3;&./!4' 2*' !67*(!&;' 6*&30(*3' A*(*' !41**1' ;&!1' <*,/(*' .2*' ' ' ,/(' (&.!,!-&./!4' <0.' .2!3' A&3' &;;* &41' 041*(' .2*' 30--*33/(3' /,' 0>03.03' *=*4' .2!3' 7(/-**1!4>' <*-&6*' (&(*(' !4-*' .2*' .!6*' /,' *37&3!&4' .2*' *67*(/(3' &.' .2*!(' &--*33!/4' (*-*!=*1' .2*!(' ;*>!3;&.!=*' &41' /.2*(' 7/A*(3' ,(/6' .2*' ' (# <0.' .2!3' ;!D*' .2*' (*3.' =&3' &' 6*(*' ,/(6&;!.5' 2*' 7/A*(' /,' *;*-F .!/4' A&3' .2&.' A2!-2'!4' &77*&(&4-*' &.' ;*&3.' 30(=!=*1' ;/4>*3.' 0>03.03' ;!D*' 0;!03' 3*3&(' &;;/A*1' .2*' ' " ' ./' -/4,!(6' .2*' 4/6!4&.!/4' /,' .A/' -&41!1&.*3' ,/(' .2*' /430;32!7' *' &;3/' ;*,' ./' .2*' ' " ' &41' ' .2*' 7/A*(' /,' ,(**' *;*-.!/4' ./' 2&;,' .2*' /.2*(' 6&>!3F .(&-!*3'#' .2*' /.2*(' 2&;,' <*!4>' ,!;;*1' <5' 4/6!4**3' /,' 2!3' /A4' !<*(!03' .(&43,*((*1' .2*';&3.' (*64&4.'/,' ,(**' *;*-.!=*' 7/A*(n' ./' .2*' 3*4&.*' A2/3*' 7(/7/3&;3' /(!>!4&.!4>' 041*(' !67*(!&;' !4,;0*4-*' A*(*' ;&!1' <*,/(*' .2*' ' ,/(' (&.!,!-&.!/4' 2*' ,/(6&;!F .!*3' .2*' &037!-*3' 7(&5*(' 3&-(!,!-*' &41' 7(/-;&6&.!/4'A*(*'4/A'.2*'!67/(.&4.'.2!4>' &41' .2*' 6*&30(*3' 7(/7/3*1' A*(*' -&((!*1' 4/.' <5' (*>0;&(' =/.!4>' <0.' <5' &--;64&(' .!/4

/6!.!46' 2*'4&6*' /,' &'36&;;'37&-*'!4' /6**'</041*1'/4'.2*'4/(.2'<5'.2*'3*4&.*'" 2/03*' # ' ! &(' &41' /4' .2*' 3/0.2' <5' .2*' '& ' $# &(' /A4'./'.2*'@41' -*4.0(5'4 '!.'A&3'03*1',/(' .2*' 6**.!4>3' .2*' &33*6<;!*3' &41' /,' .2*' -/0(.3' /,' ;&A' ,.*(' .2*' (*6/=&;' /,' .2*' ' !.'<*-&6*' 7&(.'/,' .2*' /(06' ' ;&4'041*(' $! ' /' $R

/66*(-*' 6 ' 4'.2*' /6*(!-'7/*63' .2*' (**D3'&(*'4/.'(*7(*3*4.*1'&3'&'7*/7;*' A!.2' &' "37/4.&4*/03' !4-;!4&.!/4' ./' -/6F 6*(-*' 41**1'..*'7/3!.!/4' /,' .2*' /;1*3.' (**D'-!.!*3',&(' &A&5',(/6' .2*'3*&'30,,!-!F *4.;5'32/A3'.2&.' .2*!(' ,/041*(3' -&4' 2&=*' 2&1'4/'!1*&' /,' '&3'&6*&43' /,' >*..!4>' A*&;.2' (**D'4&=!>&.!/4'!4'&4-!*4.'.!6*3' A&3' &;6/3.' *0-2.3!=*;5'30<3*(=!*4.' ./' A&(' &41' 7!(&-5' ./' A2!-2',/(' &' ;/4>' .!6*'4/' 3.!>6&'A&3'&..&-2*1'!4'70<;!-'/7!4!/4' 41' .2*' .(&1*' -&((!*1' /4' A!.2' (**-*' <5' .2*' 3!&.!-3' *37*-!&;;5' .2*' 2/*4!-!&43' A2/' .2*4'(0;*1'.2*'K (**D'3*&3'-&4'2&(1;5'2&=*' <**4' =*(5'&-.!=*' 2*' (**D3'2&=!4>'4/' &>(!-0;.0(&;' /(' !4103.(!&;'7(/10-*' ./' /,,*(' -/0;1'4/.'2&=*'.*67.*1'6&45',/(*!>4*(3'./' 1*&;'A!.2'.2*6' 0.'!4' .2*' -*4.0(!*3'30*" -**0!4>'.4*' !/6*(!-'&>*'.2*'-/66*(-*' /,' (**-*' A&3'(*=/;0.!/4!Q*1

2*'!3;&413'37*-!&;;5' >!4&'&41' 0</*&' A*(*' ,/(*6/3.' !4' -/66*(-!&;' 041*(.&DF !4>3" .2*' /4;5' -/4.!4*4.&;' ./A4' A2!-2' A&3' &.' &;' 30--*33,0;' !4' .2!3' A&5'<*!4>' /(!4.2'A2!-2' A&3',&=/0(*1'<5'!.3' !4-/6F 7&(&<;*'7/3!.!/4' .'A&3'.2*',/041&.!/4' /,' .2*' *;;*4!-' -/;/4!*3' !4' 3!&' !4/(' .2&.' ,!(3.' /--&3!/4*1' .2*' ,(**' 1*=*;/76*4.' /,' (**D'.(&1*' 2*'*0*(.!/43'/,' .2*';/4!&43' A*(*' 6&!4;5'!43.(06*4.&;' !4'-(*&.!4>'.A/' .2!4>3'!41!37*43&<;*'./'!.3'30--*33'4&6*;5' -/66*(-!&;&-.!=!.5'*0-!.*1'<5'-/4.&-.'A!.2' .2*' &4-!*4.' !4103.(!*3' /,' .2*' &3.' &41' &6&(!.!6*' 7/A*(' !4' .2*' 7(/7*(' 3*43*' A2!-2' 6&1*' !.' 7/33!<;*' ./' /03.' .2*' 2/*4!-!&43' ,(/6' .2*' 4&=&;' 307(*6&-5'A2!-2'.2*5'2&1' 3/';/4>' 6&!4.&!4*1' 2!3'4*A'-/66*(-!&;' &-.!=!.5' 4*-*33!.&.*1' &' ;&(>*(' 03*' /,' .2*' 7(*-!/03'6*.&;3'&41'.2*'*3.&<;!326*4.'/,' &' >/;1'&41'3!;=*(' -/!4&>*'A2!-2'.2*';/4!&43' A*(*' .2*',!(3.'&6/4>'.2*' (**D3'./' &1/7.' 2!3'7(/=*1' &' 7/A*(,0;' 3.!60;03' ./' .2*' 1*=*;/76*4.' /,' -/66*(-*'/(' (&.2*(' !.' A&3' .2*'=*(5'-/41!.!/4'/,'!.3'*0!3.*4-*' !;*.03' .//D' .2*' ,!(3.' 7;&-*' &6/4>' .2*' .(&1!4>' -/;/4!*3' 2*'!4,;0*4-*' /,' .2*3*' -!.!*3'07/4' .2*!(' 6/.2*(' -/04.(5'A&3'3/'3.(/4>' .2&.' *=*4' .2*' /(!&43' >(&10&;;5';/3.' .2*!(' 4&.!/4&;'&41'-2&(&-.*(!3.!-'1!3;!D*' /,' .(&1*' &41' -/66*(-*' &41' .2(*A' .2*63*;=*3' &-F .!=*;5'!4./.2*!(' 70(30!.' /A4' ./' .2*" .2*-*4.0(5'·$' (**D'-/66*(-*'2&1'*0.*41*1' !.3*;,' ./' .2*' -/&3.3' /,' .2*' *1!.*((&4*&4' &41' .2*' !4;&41' 3*&3' -/44*-.*1' A!.2' !.' *37*-!&;;5' ./A&(13' .2*' &3.' .' A&3' 4/.' 04.!;' &' ;&.*(' .!6*' .2&.' .2*43'K/!4*1' .2*' -!(-;*' /,' -/66*(-!&;' -!.!*3' =*4'!4' /;/43' .!6*' .2*' .2*4!&43' 2&1' ;!=*1' 6&!4;5' <5' &>(!-0;.0(*' &41' -&..;*"<(**1!4>' &41' !.' A&3' /4;5'A!.2' .2*'>(/A.2' /,' .2*'1*6/-(&.!-' /43.!.0.!/4' .2&.' .2*!(' -/66*(-!&;' !4.*(F -/0(3*' A!.2' .2*' /.2*(' -!.!*3' <*-&6*' &.' &;;' -/43!1*(&<;*' 2*' *(3!&4' A&(3' &41' 2*!" 7/3!.!/4' &3' 2*&1' /,' .2*' 4&=&;' -/4,*1*(&-5' (&!3*1' .2*43' ./' .2*' 7/3!.!/4' /,' .2*' ,!(3.' 6&(!.!6*' 7/A*(' !4' (**-*' 41*(' .2*' &1F 6!4!3.(&.!/4' /,' >(!-;*3' 32*' <*-&6*' .2*' -*4.(*' /,' &;' *;;*4!-' &-.!=!.5' 4/.' /4;5'!4' &(.'&41' 3-!*4-*' <0.' !4' .(&1*' .A&3' /4;5' /(!4.2' &41' /(-5(&' A2/3*' A*3.*(4' .(&1*' *4&<;*1' .2*6' ./' 6&!4.&!4' &' 7(/6!4*4.' 7/3!.!/4' <5' .2*' 3!1*' /,' .2*43' 2*' (**D3' /,' 3!&' !4/(' -/67;*.*;5';/3.' .2*!(' -/6F 6*(-!&;'7/3!.!/4'&,.*(' .2*!(' -/4:0*3.' <5' .2*' *(3!&43' 2*' 4&=&;'307(*6&-5',' .2*43' &41' A!.2' !.' !.3' -/66*(-*' A&3' -/67;*.*;5' &44!2!;&.*1' <5' .2*' *;/7/44*3!&4' 06(' .

&;;5 37*&D!4> ./ .2* (/0.* &41 .2* .!6* ./ 6*4. /,,!-!&;3" !4 .2*43 ,/(!43.&4-* ./ <* /--07!*1 ./ .2* -2&(&-.*(&41 =&;0* /, .2* .*4 /=*(3**(3 /, .2* 9 & 2* .2*4!&43 2&1 &;3/ & A&(*3 &41 ./ .2* (*7&56*4. /, .2* 37*-!&;</&(1 -&;;*1 " ./ 3** .2&. ;/&4" .2* ;&..*(./ 1*.*(6!4** A2*.2*(!. .2* A*!>2.3 &41 6*&30(*3 A*(* -/((*-. . 32/0;1 2* 6&1** /4 .2* 32!73 &((!=!4> &. A&3 /4;5 !4* *0-*7.!/4&;* -&3*3 .2&. .2* ,(** !.3 1*3.!4&.!/4 /(/4 !.3 (*.0(4 2/6* 4* 1/6 /, .(&1* A&3 !4.*(,*(*1 A!.2 <5 6/4/F .2* ,!(3.-&3* .2* -(*1!./(A/0;1 /,.*4 3&!; 7/;!*3 4/(A&3 !.030&; ./ ;&5 7(/2!<!.!/43 A!.2 .2* 32!7 !, 2* 2&1 4/ (*7(*3*4.&.!=* 07/4 !67/(.3 (/2!<!.!/43 / *07/(.&./!4 %/4 .2* 37/. /(&. .2* 7/(. ,/(A2!-2 32* A*(* 2/A*=*(60-2 -/66/4*(4 6&45 A&3 </041 3.&.*3 &3 1 !4 &-*1/4!& !. A&3 ,/(<!11*4 . .2* !4.*(*3.3 / , .2* -(*1!./(A*(* 7(/.*-.*1 /*07/(. <0!;1!4> 6&.*(!&;3 *37*-!&;;5A//1 <5 &3.(!-. -/1 / ;&A3 (&010;*4. &77(/F ,/(32!7"<0!;1!4>" &41 4/ >(&!4 6!>2. <* 7(!&.!/4 / , &* 1*7/3!. A&3 704!32&<;* A!.2 *07/(.*1 ,(/6 ..!-& >&!4 4/ .2*4!&4 1*&.2" 1!;&./(!4*33 !4 7&56*4. A!.2 !6F 6*(-2&4. A&3 7*(6!..*1 ./ -&((5 -/(4 ./ 7(!3/46*4. B2* -(*1!./(A&3 &;;/A*1 ./ &45 2&(</0(<0. .2&./ , .2*43" 4/ -!.!0*4 3*!0* 4/. /4;5 .2* 3*-0(!.5 <0. .2* A2/;* /((*37*-.3 3*-0(!.5 / , 32!73 -&((5!4> - 6 . / &45 7;&- 7(/7*(.5 / , .2* 1*<./(4 /.2*((*37*-.3 <0. .2*43 =*4 ,/(*!>4*(3 A2/ -&6* .2*4!&4 ;*>!3;&.!/4 3*-0(*1 3*=*(&; &1F A!.2 -/(4 !4./ .2* 2&(</0(/ , .2*43 A*(* =&4.&>*3 ./ .(&1*(3 /66*(-!&; -&3*3/4;5 -/67*;;*1 ./ 1*7/3!. .A/". 2!.13 / , !. ,/(-&6* <*,/(* .2* ;&A -/0(.3 !4 A!4.*(A2*4 &; .2* 2/A*=*(60-2 -/66/4*(4 6&45 4&=!>&.!/4 A&3 !67/33!<;* &41 .2*5 2&1 ./ <* 3*!0* 4/ /4;5 .2* 3*-0(!.5 <0. .2* A2/;* 1*-!1*1 A!.2!4 &(6/4.2 4 /(1!4&(5 -&3*3 7(/7*(.5 / , .2* 1*<./(4 /.2*((*37*-.3 / , 1*<. .2* -(*1!./(-/0;1 /4;5 3*!0* /4 .2* .2*4!&4 ;*>!3;&.!/4 3*-0(*1 3*=*(&; &1F 1*<./(3 7(/7*(.5 <0. !4 -/66*(-!&; -&3*3 =&4.&>*3 ./ .(&1*(3 /66*(-!&; -&3*3/4;5 2* A&3;!&<;* ./ <* !67(!3/4*1 !, -/41*64*1 -&6* <*,/(* .2* ;&A -/0(.3 !4 A!4.*(A2*4 .!/ 7&56*4. 4 /.2*(6&..*(3 &;!*43 2&1 4&=!>&.!/4 A&3 !67/33!<;* &41 .2*5 2&1 ./ <* (*7(*3*4.*1 !4 -/0(. <5 &-!.!0*4 !4 1*<./(3 7(/7*(.5 <0. !4 -/66*(-!&; -&3*3 -/66*(-!&; -&3*3 .2*5 -/0;1 &77*&(!4 7*(F 2* A&3;!&<;* ./ <* !67(!3/4*1 !, -/41*64*1 3/4 .2* A&3 .2* 10.5 / , .2* 2*36 .2*.3* 2* A&3 .2* 10.5 / , .2* 2*36 .2*.3* . / 3** . / .2*7(*7&(&.!/4 / , .2*3* -&3*3 2* . / 3** . / .2*7(*7&(&.!/4 / , .2*3* -&3*3 2* .(!&; A&3 -&((!*1 /4 &41 .2* =*(1!-. >!=*4 <5 &37*-!&; .(!<04&; .2*) (7 *(-2&4.3 -/0;1 *&3!;5 /<F .&!4 .2* -/43!1*(&<;* 7(!=!;*>* / , *0*67.!/4 ,(/6 6!;!.&(5 3*(=!-* .2/0>2 .2*5 A*(* 4/. ;*>&;;5 *4.!.;*1 ./ !. 4 >*4*(&; !. 6&5 <* 3&!1 .2&. .2* (**D 3.&.*3 !4 -/43!1*(&.!/4 / , .2* !67/(.&4-* / , .(&1* A*4.=*(5 ,&(!4 7(/=!1!4>, /(!.3 !4.*(*3.3 2*5 1!1 .2*!(<*3. ./ 3*-0(* !.3 3&,*.5 &!1 !41*7*41*4-* <5 ,/(-* / , &(63 &41 -/4-;01*1 .(*&.!*3 A!.2 .2* 3&6* *41 !4 =!* A 2!3 !3*37*-!&;;5 .(0* / .2/3* &>(** 6*4.3 A2!-2 (*>0;&.*1 .2* ;*>&; (*;&F .!/43 / , .2* -!.!0*43 / , .2* .A/ 3.&.*3 !4 .2*!(!4.*(-/0(3* A!.2 *&-2 /.2*(&41 7(*F 3-(!<*1 .2* ,/(63 ./ 2* /<3*(=*1 <5 .2* -!.!0*43 / , " 3.&.* A2*4 <(!4>!4> 30!.3 &>&!43. .2/3* / , &4/.2*(2* !43.!.0.!/4 / , - " -/((*37/41!4> ./ .2&. / , .2* 6/1*(4 -/430;3 A&3 / , !66*43* <*4*,!. ./ .2* .(&1!4> -/6604!.5 2* (**D >/=F *(46*4.3 1!1 &>(*&.1*&; !4 .2* A&5 / , -/43.(0-.!4> 2&(</0(3 A&(*2/03*3 &41 <0!;1!4>3 ,/(*0-2&4>* !4 .2* 4*!>2</0(F 2/1 / , .2* 2&(</0(3 2* 307*(!4.*41*4-* / , .2* 2&(</0(.(&,,!- ;!D* .2&. / , .2* 6&(F D*. .(&,,!- A&3 *4.(03.*1 ./ 37*-!&; >/=*(4F

6!11;*' /,' .2*' C.2'-*4.0(5' -' .2*' .(&,,!-' ;' /6*' A&3' -/4,!4*1' ./' &(1!4!&' !-!;5' &41' ,(!-&' 0.' A!.2' .2*' *0.*43!/4' /,' .2*' /6&4' 7/A*(' /6&4' -/66*(-*' &3306*1' A!1*(' 1!6*43!/43' .' .2*' *41' /,' .2*' (*F 70<;!-&4' 7*(!/1' /6&4' 32!73' A*(*' /4' *=*(5' 3*&' &41' .2*(*' A&3' &' ,;/0(!32!4>' !4.*(!/(' .(&1*' !4' .&;5'&41'&;;' .2*' 7(/=!4-*3' 2*(F *=*(' .2*(*' A&3' &' 4&=!>&<;*' (!=*(' !.' A&3' 03*1' ,/(' -/66 604!-&.!/4' A!.2' .2*' 2&77!*3.' (*30;.3' ,.*(' .2*' 3*-/41' 04!-' &(' /6*' >(&10&;;5' &-:0!(*1' .2*' -2&(&-.*(' /,'&'>(*&.' -/66*(-!&;' -!.5' A2*(*' .2*' 7(/10-.3' /,' .2*' %A2/;*' A/(;1' 4&.0(&;' &41' !4103.(!&;' ,/041' &' 6&(D*.' 2*' 6/3.' -/43!1*(&<;*' !67/(.' A&3' -/(4' &41' .2!3' &.'&;;' 7*(!/13' /,' /6&4' 2!3./(5' . ' ' 2*' -2!*,' *07/(.3' /,' .&;5' A*(*' A!4*' &41' /!;' ./' A2!-2' A*' 603.'&11' &,.*(' .2*' 1*=*;/76*4.' /,' .&;!&4' !4103.(5' 6&40,&-.0(*1'>//13' 2*' .(&1!4>' 2&(</0(' /,' /6*' A&3' 2./;!' 8 /QQ0/;!9' /4' .2*' &5' /,' &7;*3' A2!;*' 3.!&' A&3' 03*1' 6&!4;5' <5' -/(4"32!73' *..5' 1*&;!4>' A&3' (*>&(1*1' 04,&=/0(&<;5' <5' .2*' /6&43' &3' <5' .2*' (**D3" <0.' .(&1*' /4' &' ;&(>*' 3-&;*' A&3' .2/0>2.' :0!.*' (*37*-.&<;*' .2/0>2' !4' /;1*(' .!6*3' 6*6<*(3' /,' .2*' 3*4&.*' A*(*' 4/.' &;;/A*1' ./' *4>&>*' !4' !.' /3.' /,' .2*' ;&(>*(' 041*(.&D!4>3' &.' /6*' A*(*' !4' .2*' 2&413' /,' /!4."3./-D'-/67&4!*3' . ' □ ' .2*' *0!3.*4-*' /,' A2!-2' 6&1*' !.' 7/33!<;*' ,/(' 36&;' -&7!.&;!3.3' ./' 32&(*' !4' .2*' 7(/,!.3' &41' (!3D3' /,' -/66*(-*' .' A&3' !41**1' &4' /;1' 6&0!6' /,'<03!4*33' 6*4' &.' /6*' .2&.' !.' A&3' <*..*(' ./' 2&=*' 36&;' 32&(*3' !4' &' 406<*(' /,' 37*-0;&.!/43' .2&4' ./' 37*-0;&.*' !41*7*4" 1*4.;5' 2*' -/(4' .(&1*' !4' 7&(.!-0;&(' A&3' !4' .2*' 2&413' /,' .2*3*' -/67&4!*3' 2*' >/=F *(46*4.' &;;/A*1' .2*6' ./' .(&437/(.' -/(4' ,(/6' &(1!4!&' !-!;5' 7&!4' ,(!-&' &41' \ >57.' ./' /6*" A2/;*' ,;**.3' /,' =*33*;3'-/4F 3.(0-.*1',/(' .2*' 70(7/3*'<*!4>'&77/!4.*1'./' .2!3' 3*(=!-*' /(*!>4' .(&1*' A&3' 30<*-.*1' ./' &' 406<*(' /,' (*3.(!-.!/43' 2*' *07/(.&F .!/4' /,' -*(.&!4' 7(/10-.3' A&3' &<3/;0.*;5' 7(/2!<!.*1' ,/(' !43.&4-*' !(/4' A2*.2*(' 44" A(/0>2./(' 6&40,&-.0(*1' &(63'-/!4'3&;.' &41'>/;1' &41' 10.!*3' A*(*';*=!*1'/4'&;' !6F 7/(.3' 2*(*' A*(*' &;3/' 406*(/03' (*3.(!-F .!/43' /4' .(&1*' !4' .2*' !4.*(!/(' &3' *&-2' 7(/=!4-*' ,/(6*1' &' 04!.' /,' .&0&.!/4' !4' A2!-2' ./;' 2&1' ./' <*' 7&!1' /4' *4.*(!4>' /(' ;*&=!4>' !.' 6/4>' .2*' 3.&.*' 6/4/7/;!*3' .2*' 6/3.'!67/(.&4.' A&3' .2&.' /,' 3&;.

&& & ' ;*>&;' (*;&.!/4' *0!3.!4>' <*.A**4' .A/' .&;!&4' 3.&.*3' &--/(1!4>' ./' A2!-2' .2*' -!.!Q*43' /,' *&-2' 2&1' .2*' 3&6*' (!>2.'/,'&-:0!(!4>'7(/7*(.5'*37*-!&;;5';&41*1' 7(/7*(.5' !4' .2*' .*((!./(5' /,' .2*' /.2*(

" #' &;3/' !4-;01*1' .2*' 7/A*(3' /,' !42*(!.!4>' ;*>&-!*3' &41' -/4.(&-.!4>' /<;!>&F .!/43

/67>(*41!4&.;/' f 2*' &.!4' 4&6*',(' .2*' 7/3.7/4*6*4.' /,' &' .(!&;' ,/(' &' 1*,!4!.*' .!6*<5'-/43*4.' /,' </.2'7&(.!*3'*&-2'<*!4>' </041'./'&77*&(' /'<*'1!3.!4>0!32*1',(/6' # < $' A2!-2' 3**63' ./' 2&=*' 6*&4.' &4' !41*,!4!.*' 7/3.7/4*6*4.' !4' -/43*:0*4-*' /,' 04-*(.&!4.5'/4'.2*'7&(.'/,' .2*'K0(5g

/67;.&;!D' ' & #

/67;!!=!!!6' ' /)

/4-/(1!&' 2*' &.!4' 7*(3/4!,!-&.!/4' /,' -/4-/(1' /(' 2&(6/45' *37*-!&;;5' &6/4>' /6&4' -!.!Q*43' 2(!4*3' A*(*' (*7*&.*1;5' *(*-.*1'./' " '10(!4>'.2*'(*70<;!-&4' 7*(!/1'&,.*(' .2*'-*33&.!/4'/,'-!=!;'1!33*43!/43' 2*' *&(;!*3.' A&3' 1*1!-&.*1' <5' &6!;;03' !4' ?U' -' 2*' >/11*33' /4-/(1!&' A&3' &;3/' !4=/D*1' ./>*.2*(' A!.2' &4,!3' &;,!3' &41' &0'&.' .2*' ,&6!;5',*3.!=&;' /,' .2*' < $ /4' .2*' N.2' &(-2'&41' A!.2' *403' &41' /(.04&' <5' 6&((!*1' A/6*4' /4' .2*' $3.' /,' 7(!;' . ' .&* #(' 0(!4>' .2*' !67*(!&;' 7*(!/1' " ' ' ' A&3' A/(32!77*1' &3' .2*' 7(/.*-.(*33'/,'2&(6/45'*37*-!&;;5'/,' 6&.(!6/4!&;' &>(**6*4.' !4' .2*' *67*(/(3' 2/03*2/;1

/4,&((.;/' ' .&* &1 '?

/4>;&(!! ' 2*' &.!4' A/(1',/(' &' 7(*F 3*4.' /,' /!;' &41' A!4*' >!=*4' ./' .2*' 7*/7;*' !4' &11!.!/4' ./' .2*' (*>0;&(' 1!3.(!<0.!/4' /,' -/(4' <5' 6&>!3.(&.*3' &41' -&41!1&.*3' ,/(' /,,!-*' 83**' * * $ * &(' 2*'-03./6'<*>&4'!4' (*70<F ;!-&4' .!6*3' 41*(' .2*' 67!(*' .2*' A/(1' A&3',0(.2*(' &77;!*1'*' ./' .2*' 7(*3*4.3' /,' /!;' A!4*' &41' 3&;.' &41' ;&.*(' /,' (*&15' 6/4*5' A2!-2' .2*' *67*(/(' 6&1*' (*>0;&(;5' ./' .2*' 7*/7;*' !4' -*(.&!4' ,*3.!=*' /--&3!/43' &3' /4' 2!3' &--*33!/4' &41' /4' 2!3' <!(.21&5' . ' $ * & 2$ (

/43>-(&.;/' 2*' &-.' /,' .2*' /6&4' " $' !4' =!(.0*' /,' A2!-2' &' .2!4>' A&3' 7(/-;&!6*1' &3' " $' ' <*;/4>!4>' ./' /(',/(,*!.*1' ./' .2*' >/13' 8 4' .2*' (!.*' /,' " " '&33/-!&.*1' A!.2' .2*' 3/;*64*1*1!F -&.!/4' /,' &' 3&4-.0&(5' ' " & $7 /4' " " '&3' .2*' &7/.2*/3!3' /,' .2*' *67*(/(' ')$ $# #(' 4'-&3*' /,'-*(.&!4' /,,*4-*3' 3*4.*4-*' /,' " " ' " ' ! L G #' A&3' 7(/4/04-*1' 07/4' .2*' /,,*41*(' A2/3*' 7*(3/4' &41' 7(/7*(.5' A*(*' .2*4' 6&1*' /=*(' &3' &' 3&-(!,!-*' ./' 3/6*' 1*!.5' ' 6&((!*1' 6&4' A2/' 3/;1' 2!3' A!,*' A&3' 1*=/.*1' ./' .2*' >/13' <*;/A' &' 3/4' A2/' <*&.' 2!3',&.2*(' ./' .2*' 2/03*2/;1' >/13' /4*' A2/' (*6/=*1' 2!3' 4*!>2</0(3' ;&416&(D' ./' *(6!403' ' & ' A2/' <*.(&5*1' 2!3';!*4.' /(' &;-;!*4.' A2/' <*.(&5*1' 2!3' $' ./' 07!.*('

/4*' A2/' 3./;*' -/ 6' !4' .2*' *&(' ./' *(*3' /' D!;;' &' (/' ' A&3' 4/.' &--/04.*1' &3' 60(1*(' <0.' &3' .2*' ,4;;!;6*4./',' .2*' 1!=!4*' =*4>*&4-*

/K;3;;;.!6' 2*' &.!4'A/(1',/(' &' -/04-!;' /(' </15' /,' &1=!3*(3' 0-2' -/04-!;3' A*(*' -&;;*1' !4' &--/(1!4>' ./' &4-!*4.' -03./6' <5' .2*' 7(*3!1!4>' 6&>!3.(&.*' !4' -!=!;' &41' -(!6!4&;' -&3*3' =*4'!4'.2*',&6!;5'.(!<04&;3' A2!-2' 1*-!1*1' -&3*3' &,,*-.!4>' .2*' 6*6<*(3' /,' .2*' 1 "L' &' " ' /,' D!43,/;D' A&3' .2/0>2.' 4*-*33&(5' 2*' -03./6' A&3' .2&.' .2*' 7(*3!1!4>' K01>*' </041' 2!63*;,' <5' .2*' 1*-!3!/4' /,' 2!3',(**;5' -2/3*4' " ' <0.' .//D' .2*' (*37/43!<!;!.5'2!63*:,,' ' 2*'*07(*3F 3!/4' " ' A&3' &,.*(A&(13' .(&43,*((*1' ./' .2*' (*>0;&("K0(!*3' /,' .2*' -/0(.3' A2!-2' 1*-!1*1' -!=!;' &41' -(!6!4&;' -&3*3' 83**' ") & + ' / ! 39' 2*'*67*(/(3'.//' 6&1*'&'7(&-.!-*' /,' !4=!.!4>' &' " ' /,' ,(!*413' ./' &33!3.' .2*6' !4' .2*!(' K01!*!&;' 1*-!3!/43' ,.*(' .2*' .!6*' /,' &1(!&4'.2*' 6*6<*(3' /,' .2*'!67*(!&;' " ' B7*&(' &3' (*>0;&(;5'&77/!4.*1'&41'3&;&(!*1' /,,!-*(3' .2*' $ " ' 1 ' 2*3*' A*(*' >*4*F (&;;5' .2/0>D' 4/.' *0-;03!=*;5'3*;*-.*1',(/6' .2*' </15' /,'7(/,*33!/4&;'K0(!3.3' ,.*(' .2*' C.2' -*4.0(5' ' .2*' A/(1' " ' A&3' 30<3.!.0.*1',/(' " # 6*&4!4>' /(!>!4&;;5' .2*' -/04-!;"-2&6<*(' !4' .2*' !6F 7*(!&;'7&;&-*

/432& ' ' $*#!#

/43. *3' 8/(!>!4&;;5' -&;;*1' , ' 2*' /6&4' -/430;3' A*(*' .2*' 6&>!3.(&.*3' ./' A2/6' .2*'307(*6*' &0.2/(!.5'A&3'.(&43F ,*((*1',(/6' .2*' D!4>3'&,.*(' .2*' *070;3!/4' /,' .2*';&..*(' !4'V$N' -' 2*'-/430;3' >&=*' .2*!(' 4&6*'./' .2*' 5*&(' 2*5'A*(*';*-.*1' <5' .2*' " "" ',(/6' .2*' &.(!-!&43' /4;5' 2*' ;*>&;'&>*' ' A2!-2' &' 6&4' 6!>2.' <*'*;*-.*1' A&3' !4' .2*' .!6*' /,' !-*(/' ,/(.5".2(**' 2*' .!6*' /,' *4.*(!4>' /4' .2*' /,,!-*' =&(!*1' !4' .2*'*&(;5'7*(!/13K' !4' @@@' " "'!.'A&3',!0*1' ./' &(-2'$V.2'!4'$V' ./' .2*'$3.' /,' &40&(5' 2*' &--*33!/4' /,' .2*' 4*A'-/430;3' A&3' &.F .*41*1'A!.2' 2*'7*(,/(6&4-*'/,'-*(.&!4'-*(*F 6/4!*3' &6/4>' A2!-2' 6&5'<*' 6*4.!/4*1'&' 7(/-*33!/4'/,' .2*'-/430;3' ./' .2*' &7!./;' A!.2' .2*' 3*4&.*' ' &41"/.2*(' -!.!Q*43' /,' 7/3!.!/4' &3' *3-/(.' &4' /,,*(!4>' /,' A2!.*' <0;;3' ./' 07!.*(' &41' .2*'0..*(&4-*' /,'3/;*64' =/A3

2*' -/430;3' A*(*' .2*' (*7(*3*4.&.!=*3' /,' .2*' (/5&;' &0.2/(!.5' &41' -/43*:0*4.;5' &;;' /.2*(' 6&>!3.(&.*3' A*(*' </041' ./'/<*5'.2*6' A!.2' .2*' *0-*7.!/4' /,' .2*' .(!<04*3' /,' .2*' ' &41' .2*'1!-.&./(' 0(!4>' &' 1!-.&./(F 32!7' .2*!(' 7/A*(3',*;;' !4./' &<*5&4-*' 4 ' N '

.2*'-!.5' .2*!(' &0.2/(!.5'A&3';!6!.*1' <5' .2*' (!>2.' /,' &77*&;' ./' .2*' 7*/7;*' &41' .2*' ' /,' .2*' .(!<04*3' 0.'!4' .2*' &(65'&41'/=*(' .2*!(' 30</(1!4&.*3' .2*5'2&1',0;;' 7/A*(' /,' ;!,*' &41' 1*&.2' /6*' /,' .2*!(' /(!>!4&;' ,04-.!/43' 7&33*1',(/6' .2*6' !4' -/0(3*' /,' .!6*' 203'!4'CCC' -' .2*' <03!4*33' /,' .2*' -*4303' A&3' 6&1*' /=*(' ./' .2*' *43/(3*' !4' """' .2*' -!=!;' K0(!31!-.!/4' A!.2!4' .2*' -!.5' 3/',&(' &3'!.'!4-;01*1'.2*'(!>2.'/,'7*(,/(6!4>' .2*' &-.3' /,' &1/7.!/4' *6&4-!7&.!/4' &41' ;!<*(&.!/4' /,' 3;&=*3' A&3' .(&43,*((*1' ./' .2*' 7(3*./(3' 4' .2*',!*;1'2/A*=*(' 2&=!4>' .2*' -(!6!4&;' K0(!31!-.!/4' !4' .2*!(' 2&413' .2*5' 2&1'&;3/' .2*' (!>2.'/,'1*-!1!4>'!4'-!=!;'-& *3' &,,*-.!4>' .2*' 3/;1!*(3' 4' .2*' >*4*(&;' &16!4!3.(&.!/4' /,'70<;!-'<03!4*33' .2*' /4F 30;3' &;.2/0>2' ,/(6&;;5' (*-/>4!3*1' &3' .2*' 307(*6*' &0.2/(!.5' >(&10&;;5' <*-&6*' !4' 7(&-.!-*' 1*7*41*4.' 07/4' .2*' 3*4&.*' &41' .2*' " ' &3' .2*5' 2&1' /4;5' .2*' 7/A*(' /,'7(*7&(!4>' .2*' (*3/;0.!/43' 7(/7/3*1' &41' -&((5!4>' .2*6' /0.'K,' &--*7.*1' A'!.2!4' .2*' -!.5' .2*!(' 7/A*(3' A*(*' =!(.0&;;5'-/4,!4*1' ./'3066/4!4>' .2*' 3*4&.*' &41' ' &41' 7(*3!1!4>' /=*(' .2*!(' 6**.!4>3' 2*5'&;3/' 4/6!4&.*1' .2*' 1!-.&./(3' &41' -/410-.B' .2*' *;*-.!/43' &41';*>!3;&.!/4' !4' .2*' ' &41' .2*' ;*=*!*3' /,' 3/;1!*(3' ,.*(' .2*' /,,!-*' /,' 1!-.&./(' ,*;;' !4./' &<*5&4-*' .2*' 7/A*(' /,' .2*' -/430;3' &3' !4' -&3*3' /,' >(*&.' 1&4>*(' !4-(*&3*1' ./' 1!-.&./(!&;' &0.2/(!.5' <5' &' 37*-!&;'1*-(**' /,' .2*' 3*4&.* 4'*33*4.!&;'-2&(&-.*(!3.!-'/,'.2*' -/430;&(' /,,!-*' &3' .2&.' !.' A&3' 1 ' &41' .2*(*F ,/(*' !,' /4*' -/430;' 1!*1' &4/.2*(' 8-& *1' " ' A&3' !6 6*1!&.*;5' *;*-.*1' 2!3' " ' 2&1' &<3/;0.*;5' .2*' 3&6*' &0.2/(!.5'&3'2!3'-/;;*&>0*' <0.' 2*' 2&1' ./' ;&5'1/A4' 2!3'/,,!-*' A!.2' 2!6' &.' .2*' *41' /,' .2*' 5*&(' ,/(' A2!-2' .2*' .A/' 2&1' <**4' /(!>!4&;;5'*;*-.*1

2*'7/A*(' /,' .2*' .A/'-/430;3'<*!4>'*:0&;' .2*' <03!4*33' A&3' 1!=!1*1' <*.A**4' .2*6'' 4' .2*' &16!4!3.(&.!/4' /,' .2*' -!.5' .2*5' -2&4>*1' 10.!*3' *=*(5' 6/4.2' .2*' 3*4!/(' .&D!4>' .2*' !4!.!&.!=*'*' !.2'(*>&(1'./' .2*!(' " 1" ' 4&6*;5' .2*' 1 ' - ' &41' .A*;=*' ;!-./(3' .2*' /(!>!4&;' &(F (&4>*6*4.' A&3' .2&.' .2*' ;!-./(3' &;D*1' !4' ,(/4.' /,' .2*' /,,!-!&.!4>' -/430;' A2!;*'' .2*' /.2*(' A&3' /4;5' &..*41*1' <5' &4' " ' 4';&.*(' .!6*3' .2*'-03./6'A&3',/(' .2*' ;!-./(3' ./' A&;D' <*,/(*' .2*' /,,!-!&.!4>' -/430;' &41' <*2!41' .2*' /.2*(

4' .2*' ,!*;1' *&-2' -/430;' -/6 6&41*1' .A/' ;*>!/43' A!.2' .2*!(' &;;!*1' .(//73" !,' .2*5' A*(*' !4' .2*' 3&6*' ;/-&;!.5' .2*' -/6 6&41' -26!>*1',(/6'1&5' ./'1&5' 2*' :0*3.!/4',

.2*' &16!4!3.(&.!/4' /,' .2*' 7(/=!4-*3' .2*5' *!.2*(' 3*...;*1' <5' -/43*4.' /(';*,.' !.' ./' <*' 1*-!1*1' <5' ;/.' !.2' .2*' *0.*43!/4' /,' .2*' *67!(*' .2*' -/430;3' <*-&6*' 04&<;*' ./' 041*(F .&D*' .2*' A2/;*' <0(1*4' /,' A&(,&(*' &41' .2*' 7(&*./(3' A*(*' -&;;*1' !4' ./' &33!3.' 2*' 7(/F =!4-*3' A*(*' .2*4' 1!=!1*1' !4./' -/430;&(' &41' 7(&*./(!&4' .2*' <03!4*33' /,' &33!>4 6*4.' <*!4>' ;*,.' ./' .2*' 3*4&.*' A2!-2' &,.*(' .2*' 5*&(' !' A&3' </041' ./' 6&D*' !.' <*,/(*' .2*' *;*-.!/43' 4' .2*' ;&3.' -*4.0(5' &' ;&A' /,' 0;;&' 1*7(!=*1' .2*' -/430;3' /,' &4' *33*4.!&;' *;*6*4.' /,' .2*!(' &0.2/(!.5' .2*' 6!;!.&(5' ' '' ,/(' !.' *4&-.*1' .2&.' .2*' -/430;3' 32/0;1' 37*41' .2*!(' 5*&(' /,' /,,!-*' !4' /6*' &41' /4;5' (*7&!(' ./' .2*' 7(/=!4-*3' &41' &330 6*' .2*' '&,.*(' !.3' -/4-;03!/4

4' .2*' -!=!;' A&(3' .2*' -/430;&(' /,,!-*' -/67;*.*;5' ;/3.' !.3' /;1' 7/3!.!/4' &41' .2/0>2' !.' -/4.!40*1' ./' *0!3.' 041*(' .2*' 67!(*' !.' <*-&6*' 7(&-.!-&;;5' 4/' 6/(*' .2&4' &4' *67.5' .!.;*' 2*' *67*(/(3' A2/' /,.*4' 2*;1' .2*' /,,!-*' .2*63*;=*3' &41' 3/6*.!6*3' ;!D*' 3*3&(' ,/(' 3*=*(&;' 5*&(3' !4' 30--*33!/4' 2&1' .2*' (!>2.' /,' 4/6!4&.!4>' .2*' -&41!1&.*3' &41' .2*(*,/(*' !4' 7(&-.!-*' 2&1' .2*' *;*-.!/4' !4' .2*!(' /A4' 2&413' .' <*-&6*' 030&;' ./' 4/6!4&.*' 3*=*(&;' 7&!(3' /,' -/430;3' ,/(' /4*' 5*&(' 3/' &3' ./' -/4,*(' .2*' 1!3.!4-.!/4' /4' &3' 6&45' 7*(3/43' &3' 7/33!<;*' 4' 30-2' -&3*3' .2*' -/430;3' A2/' -&6*' !4' /4' &40&(5' $3.' &,.*('A2/6' .2*' 5*&(' A&3' 4&6*1' A*(*' -&;;*1' .2*' -/04.!4>' &3' " ' 4.!;' .2*' 6!11;*' /,' .2*' $3.' -*4.0(5' !.' A&3' &' 37*-!&;' 1!3.!4-.!/4' ./' 2/;1' .2*' -/430;32!7' ,/(' &A2/;*' 5*&(' <0.' &,.*(' .2&.' 4/' -&3*3' /,' .2!3' .*40(*' /--0(' 4' .!6*' .2*' '/(' & /(' 2/4/(&(5' 1!3.!4-.!/43' /,' .2*' /,,!-*' A*(*' >!=*4' !4' -*(.&!4' 1*>(**3' *=*4' ./' 6*4' A2/' 2&1' 4/.' <**4' -/430;3' &.' &;;' 2*' -2!*,' 10.!*3' /,' .2*' -/430;3' 4/A' A*(*' ./' 7(*3!1*' !4' .2*' 3*4&.*' &41' -/410-.' .2*' -(!6!4&;' .(!&;3' !4' A2!-2' !.' 2&1' ./' >!=*' K01>6*4.' 0.' <*3!1*3' .2!3' -*(.&!4',04-.!/43' /,' -!=!;' K0(!31!-.!/4' A*(*' !4' .2*!(' 2&413' 4/.&<;5' .2*' ;!<*(&./4' \'3;&=*3' .2*' 7(/=!3!/4',/(' .2*' -/3.;5' >&6*3' A2!-2' /--0((*1' 10(!4>' .2*!(' .*(6' /,' /,,!-*' .2*' ,*3.&;' -*;*<(&./43' !4' 2/4/0(' /,' .2*' *67*(/(' &41' .2*' ;!D*' ,.*(' .2*' 3*&.' /,' *67!(*' A&3' .(&43,*((*1' ./' /4F 3.&4.!4/7;*' .2*' -/430;&.*' A&3' ./A&(13' .2*' *41' /,' .2*' C.2' -*4.0(5' 1!=!1*1' <*.A**4' .2*' .A/' -&7!.&;' -!.!*3' 2*' -/430;&.*' /,' .2*' A*3.*(4' -&7!.&;' -&6*' ./' &4' *41' !4' V C' .2&.' /,' .2*' *&3.*(4' !4' VC$' (/6' .2&.' .!6*' .2*' 67*(/(' /,' .2*' &3.' </(*' .2*' .!.;*' /,' *4303' 4' &4-!*4.' .&;!&4'3(/1'7(/<&<;5' &' >/1' /,' .2*' *&(.2' /(' /,' -(/73' !3' &;.&(' /4' .2*' !(-03' &0!6 03' &.' /6*' A&3' -/=*(*1' A!.2' *&(.2' &77&(*4.;5' &3' &' 3!>4' /,' .2*' 1*!.5 3' &-.!=!.5' !4' .2*' </3/6' /,' .2*' *&(.2' 2(**' .!6*3' !4' .2*' 5*&(' /4;5' A&3' !.' 04F -/=*(*1' /4' .2*' /--&3!/4' /,' 3&-(!,!-*3' /(' ,*3.!=!.!*3' 2*',*3.!=&;' /,' /4303' .2*' $ "2 &+ ' A&3' 2*;1' .A!-*' &' 5*&(' /4' .2*' !3.' 0>03.' &,.*(' .2*' 2&(=*3.' &41' .2*' $V.2' *-*6<*(' &,.*(' .2*' 3/A!4>' A&3' *41*1' .3' *3.&<;!32 6*4.' A&3' &..(!<0.*1' ./' /6!!" ;03' &41' !.' A&3' &.' .2*' ,!(3.-*;*<(&./4' .2&.' .2*' (&7*' /,' .2*' &<!4*' A/6*4' A&3' 307F 7/3*1' ./' 2&=*' .&D*4' 7;&-*' .' .2!3' ,*3F .!=&;' .2*' 3&-(!,!-*' A&3' 307*(!4.*41*1' <5' .2*' ;&6!4*3' /,' SO!(!403' A!.2' .2*' *3.&;' !(>!43' &41' A&3' ,/;;/A*1' <5' &' -2&(!/.' (&-*' !4' .2*' -!(-03' 041*(' .2*' 1!(*-.!/4' /,' .2*' 2*' 2/(3*3' &41' 60;*3' .2*!(' 2*&13' -(/A4*1' A!.2',;/A*(3'2&1' .2*!('32&(*' !4' .2*' 2/;!1&5' 4' -/43*:0*4-*' /,' .2*3*' >&6*3' .2*' >/1' /4303' A&3' &,.*(A&(13' !1*4F .!,!*1' A!.2' 3*!1/4' !77; 3' /(' *7.0403' :0*3.*(

/4.!1' 2*' &.!4' 4&6*' ,/(' &45' &3F 3*6<;5' 3066/4*1' &41' 7(*3!1*1' /=*(' <5' &' 6&>!3.(&.*' ' " ' 1!,,*(*1' ,(/6' .2*' " ' !4' .2*' ,/;;/A!4>' 7/!4.3' 8$9' 2*' 7*/7;*' A*(*' 4/.' 1!=!1*1' !4./' -*4.0(!*3' /(' .(!<*3' 8@9' 2*' 7*/7;*' 1!1' 4/.' =/.*' <0.' A*(*' /4;5' .2*(*' ./' (*-*!=*' -/6 604!-&./!43' 6&1*' <5' .2*' 7(*3!1!4>' 6&>!3.(&.*' /(' 3/6*' /.2*(' /,,!-!&;' /(' 7(!=&.*' !41!=!10&;' A2/6' 2*' &;;/A*1' ./' &11(*33' .2*' 6**.!4>' ;;' 6&>!3.(&.*3' 2&1' .2*' (!>2.' /,' 3066/4!4>' " " ' <0.' .2*' .(!<04*3' .//D' 7(*-*1*4-*' /,' &;;' /.2*(3' &41' &' 2!>2*(' 6&>!3.(&.*' ./!D' 7(*-*1*4-*' /,' &' ;/A*(' $ " " ' A*(*' 030&;;5' 3066/4*1' <5' 70<;!-' 2*(&;13' # 2' " ' &41' >*4*(&;;5' 6*.' !4' .2*' /(06' 2*' A*(*' !6 6*1!&.*;5' 7(*-*1*1' <5' &' " ' .2&.' .2*' 7*/7;*' 6!>2.' <*' 7(*F 7&(*1' ,/(' .2*' :0*3.!/43' ./' -/6*' <*,/(*' .2*6' ,' .2*' A*(*' ./' *0*(-!3*' K01!-!&;',04-.!/43' !.' A&3' &' ,!0*1' (0;*' .2&.' .2(**' " " ' 603.' <*' 2*;1' 7(*=!/03;5',/(' .2*' 70(7/3*' /,' !4=*3.!>&./4

/4.,!<*(4!46' ' &.!4' A/(1' 7(/7*(;5' 6*&4!4>' .*4.' -/67&4!/432!7' /(' -/67&4!/4F 32!7' !4' 6!;!.&(5' 3*(=!-*' 2*' A/(1' 3!>4!F ,!*1' 8$9' .2*' (*;&.!/4' /,' 5/04>' /6&4' 4/<;*3' ./' .2*' >*4*(&;,/,,!-*(' ./' A2/6' .2*5' 2&1'=/;04.&(!;5'&..&-2*1' .2*63*;=*3' ,/(' .2*' 3&D*' /,' 6!;!.&(5' .(&!4!4>' &41' !4' A2/3*' -/67&45' .2*5' .//D' .2*!(' 6*&;3' !4' .2*' .*4.' .' 6*&4.' 8@9' .2*' 6&((!&>*' /,' 3;&=*3' A2!-2' A&3' 4/.' ;*>&;;5' &--/04.*1' 6,!((!&>*' .2/0>2' 041*(' .2*' 67!(*' !." A&3' -/43!1*(*1' &3' &(0;*' !41!33/;0<;*' !,' -/4.(&-.*1' <5' 6*6<*(3

(' *"&' %19&' " .%&" $)' 8 9' 2*' 91''#17&'
/&*!&& '('&&' &'% %1)'%$16&%' ! "#0"' < 1%
*' 0 %#)&'&)
/4.26;-;&' 2*' &.!4' .*(6' ,/(' 1!3F
/<*1!*4-*' ./' .2*' -/6 6&413' /,' &' 6&>!3.(&.*'
/(' K01>*' *37*-!&;;5' &<3*4-*' ,(/6' &' .(!&;'
A!.2/0.' 30 -!*4.' *0-03*' ,' .2*' &--03*('
A*(*' &<3*4.' 2*' A&3' -/43!1*(*1' &3' 1(/77!4>'
2!3' -2&(>*' & ' 1 2 #& $(' A2!-2' 2*'
A&3' 4/.' &;;/A*1' ./' (*4*A' 2*' &<3*4-*'
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/,' >0!;.' 4' &' -!=!;' .(!&;' .2*' -/43*:0*4-*'
A&3' !6 6*1!&.*' -/41*6 4&.!/4' &41' .2*'
;!D*' A&3' .2*' -&3*' !4' -(!6!4&;' .(!&;3' !,' .2*'
&--03*1' ,&!;*1' ./' &77*&(' &.' .2*' &77/!4.*1'
.!6*' /(' /4' .2*' ;&3.' 1&5' /,' .2*' .(!&;' ' .2*'
&--03*1' 3&A' .2&.'2!3' -/41*6 4&.!/4' A&3' -*(F
.&!4' !.' A&3' :0!.*' -/6 6/4',/(' 2!6' ./' (*.!(*'
&41' !4' -&7!.&;' -&3*3' ./' >/' !4./'=/;04.&(5'
0!;' &' 7(/-**1!4>' A2!-2' !4' 4/' A&5' !4,;0F
*4-*1' .2*' ,0(.2*(' -/0(3*' /,' .2*' 7(/-**1!4>3
/40<;06'8 &.!49' 2*' -/4.(&-.!4>'/,' &
B" " ' ' /(' =&;!1' 6&((!&>*'
A!.2' &;;' !.3' ;*>&;' -/43*:0*4-*3' 3' 30-2'
&' 6&((!&>*' -/0;1' /4;5' .&D*' 7;&-*' <*.A**4'
7*(3/43' /,' *:0&;' 3.&.03' .2*' &.(!-!&43' &41'
;*<*!&43'2&1'*&-2',/(' &;/4>'.!6*' &'3*7&(&.*'
-C" (' 04.!;' CCV' ' ' A2*4' .2*' .A'
/(1*(3' A*(*' *:0&;!3*1' !4' .2!3' (*37*-.
/0=;=;06' ' . & #
/17.J.!/'8 &.!49' 2*' *;*-.!/4'/,' &' 4*A'
6*6<*(' <5' .2*' 6*6<*(3' /,' &' -/(7/(&.!/4'
./' 3077;5' &'=&-&4.' 7;&-*' 6/4>'-/(7/(&F
.!/43' A2!-2',!;;*1' .2*!(' =&-&4-!*3' !4' .2!3'
A&5' 6&5' <*' 6*4.!/4*1' .2*' -/;;*>*' /,'
/4.!,.-*3' &41' 0>0(3' 2*' *;*-.!/4' A&3'
7(*-*1*1' <5' .2*' 4/6!4&.!/4' /,' &' 7(/7*(*
/&41!1&.*' <5' /4*' /,' .2*' 6*6<*(3' &41' ,/;F
;/A*1' <5' 2!3' !4&0>0(&.!/4
6(1&0' & - ' 2*' ;!-*4.!/03' 1&4-*'
/,' .2*' &4-!*4.' (**D' -/6*15' /' 7*(,/(6'
!.' /,/,' .2*' 3.&>*' A&3' (*>&(1*1' &3' &' 3!>4'/,'
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"(*' &9 ' ' #) $*
1(!44&' & "" ' ' (**D' ;5(!-
7/*.*33' </(4' &.' &4&>(&' !4' /*/.!&' &41'
%30(4&6*1' 5!&' /(' H'.2*' ;5 I' 2*' ,;/0(F
!32*1'&</0.'V$N'4 0' 2*'A&3'.2*'!43.(0-.(*33'
G/,' !41&(' &41' !3' 3&!1!' ./' 2&=*' <*&.*4' 2!6'
,!=*' .!6*3' !4' 6 03!-&;' -/4.*3.3' 4;5'&',*A'
,(&>6*4.3' /,' 2*(' 7/*63' /,' A2!-2' .2*(*'
A*(*' ,!=*' </!D3'(*6&!4' +(:'A*(*'A(!..*4'
!4' .2*' /*/.!&4'1!&;*-.' &41' .(*&.*1'30<(*-.3'
%/,';/-&;' 65.2/;/>5' &3',/(' !43.&4-*' .2*' .&;*'
/,' .2*' H' *=*4'&>&!43.' 2*<*3 I
/(!7703' &A ' $ G") ' 4'
,(!-&4' 3-2/;&(' A2/' !4' .2*' 3*-/41' 2&;,'
/,' .2*' ".2' -*4.0(5' & "' -/67/3*1' .A/'
%2!3./(!-&;' *7!-3' /4*' !4' 3*=*4' </!D3' !4
-*;*<(&.!/4',' .2*' !<5&4' A&(' /(' 0/4&44 3'
&.(!-;03'&' (" ' ' ' ' ;) ! %
&41' .2*' /.2*(' /4' .2*' *07;/!.3',' 03.!&43'
>Q A MFH' !4' (." </!D3' &5 ' ; '
'" " ' 2*';&3.' !3' !4' .2*' A/(3.' 6&44*('
/,' 5Q&4.!4*' ,;&..*(5' <0.' !3' A(!..*4' !4'
&',;/A!4>' 3.5;*' &41' !4' !6!.&.!/4' /,' >/!1'
6/1*;3' 30-2' &3' *.>!;' &41' ;&01!&4
/(4*;!03' 8$9' $ " ' > ' '
/6&4' 2!3./(!&4'&' 4&.!=*' /,' 77*(' .&;5'
A2/';!=*1'<*.A**4'TC'&41'@C' ' *' A&3'&'
-/4.*67/(&(5'/,' !-*(/' ..!-03' &41' &.0;F
;03' A!.2' A2/6' 2*' ;!= ' !4' ,(!*41;5'!4.*(F
-/0(3*'&.' /4;*' 2*' 6/3.'-/67(*2*43!=*'
/,' 2!3' 6&45' A(!.!4>3' A&3' &' -/;;*-.!/4' /,'
<!/>(&72!*3' /,' -*;*<(&.*1' 6*4' #5 ' = '
' !4'&.';*&3.'3!0.**4'</!D3' 2!3'
A&3'1*1!-&.*1'./' ..!-03' &41' 603.' .2*(*F
,/(*' 2&=*' <**4'70<;!32*1'<*,/(*' ' @' .2*'
5*&(' /,' 2!3' 1*&.2' 2*' <!/>(&72!*3' A*(*'
&((&4>*1'!4'1*7&(.6*4.3'&41'!4'*&-2'1*7&(.F
6*4.'.2*' (**D' &41' /6&4'-*;*<(!.!*3'A*(*'
.(*&.*1'3*7&(&.*;5' 203'.2*'3.!;;'30(=!=!4>'
</!D' 07/4' 1!3.!4>0!32*1',/(*!>4' >*4*(&;3'
&5 9- " ' 5 ' 9- < ' 6 "!2
'!3',/;;/A*1'<5'/4*'/4' /6&4'>*4*(&;3'
A2!;*' &' </!D' 1*=/.*1' ./' .2*' (**D' 2!3./F
(!&43'2&1'/4*'/4'.2*' /6&4'2!3./(!&43'-/(F
(*37/41!4>'./' !.',/(6' A2!-2' .2*';!=*3'/,'
.2*'*;1*(' &./'&41'/,' ..!-03'&(*'7(*3*(=*1'
2*' ;!=*3' /,' -*;*<(&.*1' >*4*(&;3' A*(*' !4'
,/(6*(' .!6*3'8!4'-/43*:0*4-*' /,' &4' &4-!*4.'
(((/(' !4' .2' 9*((/4*/03;5'&3-(!<*1'./'&'
-*(.&!4' 6!;!!!3' (<03'/,' .2*' C.2'-*4.0(5'
' *7/3' 6&44*(' !3' *&35' &41' 7;*&3&4.'
<0.'30,,*(3',(/6' 6&45'A*&D4*33*3'/,' 6&..*('
&41',/(6' ' 307*(,!-!&;'03*'/,' 2!3'&0.2/(!F
.!*3'2&3';*1' 2!6' !4./' 6&45'*(((/(3'&41' .2*'
3.5;*'!3'4/.'3*;1/6'-&(*;*33'&41'!4-/((*-.
8@9' 6 " ' ' 6 ' ' &.!4'
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7(/6/.*1'<5' -.&=!& './.2*' ' !4'
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'/,' .2*' 4*A'7(/=!4-*'/,' >57.'!4'-/4F
3!1*(&.!/4',' 2!3'>(*&.'3*(=!-*3'!4'.2*'A&(
&>&!43.' 4./4!43' 2(/0>2'2!3'-(0*;.5'&41'
7(*30 67.!/4' 2*'1(*A'07/4'2!6 3*;,'.2*'1!3F
7;*&30(*' /,' 2!3' ,/(6*(' 7&.(/4' !4' -/43*F
:0*4-*' /,' A2!-2' 2*' -/6 6!..*1'30!-!1*'!4'
@?' ' *' A&3' /4*' /,' .2*' /;1*3.',(!*413'
/,' *(>!;'A2/'1*1!-&.*1' ./' 2!6' 2!3' .*4.2'
-;/>0*'&3'A*;;'&3'&4' *7!3/1*'&.' .2*' *41' /,'
.2*',/(0.2' */(>!-'A2!-2'2*'&,.*(' &;;03'
,&;;'3077(*33*1'&.' .2*' A!32' /,' 0>03.03'
2*' /6&43'(*>&(1*1'2!6'&3'.2*' ,/041*('
/,' .2*' &.!4'*;*>5' *' A(/.*' ,/0('</!D3'/,'
;>!*3' ./'2!3'6!3.(*33'.2*'&-.(*33' 5.2*(!3'
8/(' 5-/(!3'&3'2*'-&;;*1'2*(9' 2*5'&(*'!4

.2*' /<3-0(*' &41' ;*&(4*1' 3.5;*' /,' .2*' ;*0F
&41(!&4' 7/*.' 072 (/4' !3' 7/*63' &(*'
;/3.' <0.' &' -/;;*-.!/4' /,' *(/.!-' 65.23' 6&1*'
,/(' 2!3' 03*' <5' .2*' (**D' &(.2*4!/3' 2&3'
30(=!=*1' f ',*A' ;!4*3' !4' *(>!;3' .*4.2'
-;/>0*' A*(*' </(/A*1',(/6' &;;03g
/(4;-B4' 2/(4"<;/A*(' !4' .2*' /6&4'
&(65'A2/'>&=*' .2*'3!>4&;',/(' &..&-D'/4'&4'
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/(4;,!-;03' 2*' 3077/3*1' &0.2/(' /,' &4'
&4/456/03'.(*&.!3*'/4'(2*./(!-'!4',/0('</!D3'
1*1!-&.*1'./'&-*(.&!4' *(*44!03'&7(! '
' "" ! ' 2!3' !3' .2*' /;1*3.' &.!4'
.(*&.!3*' /,' .2*' 3/(.'.2&.'A*' 7/33*33' .'A&3'
A(!..*4'!4'.2*' .!6*' /,' 0;;&'&</0.'RV' '
<5'&'7&(.!3&4'/,'.2*' &(!&4',&-.!/4'A2/'
.2/0>2'4/.'&'7(/,*33*1'(2*./(!-!&4'A&3'&4'
10&.*1' 6&4'&3'!3'32/A4'<5'2!3'&--/6F
7;!326*4.3'&41'2!3'-/((*-.'3.5;*' 2/0>2
72!;/3/72!-&;' A/(D3' /4*' (*6&!43' &4' *33&5'
/4'.2*' &.0(*'/,'.2*' /13'A(!..*4'!4' (**D'
2!3' !3' 7*(2&73' /4;5' &4' *0.(&-.',(/6'&
;&(>*(' A/(D' &33;/1/(03'&' ' 2&3'7(*F
3*(=*1'7&(.'/,'&'>(&66&.!-&;' .(*&.!3*' <5'
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!4>'/,'&'>&(;&41'/,'>/;1'/(' 3!;=*(';*&=*3'
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1(V4&'8 &.!49' '-(/A4'' &6/4>'.2*'
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3*(=!-*' !4' A&(' 2*' 6/3.'-/=*.*1' A*(*'
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>*4*(&;'<5'.2*'&(65'A2!-2'2*'2&1'3&=*1

8$9 /(/4&'.(!067<&;!3 8@9 /(/4&;'/<3!1!/4&;!3

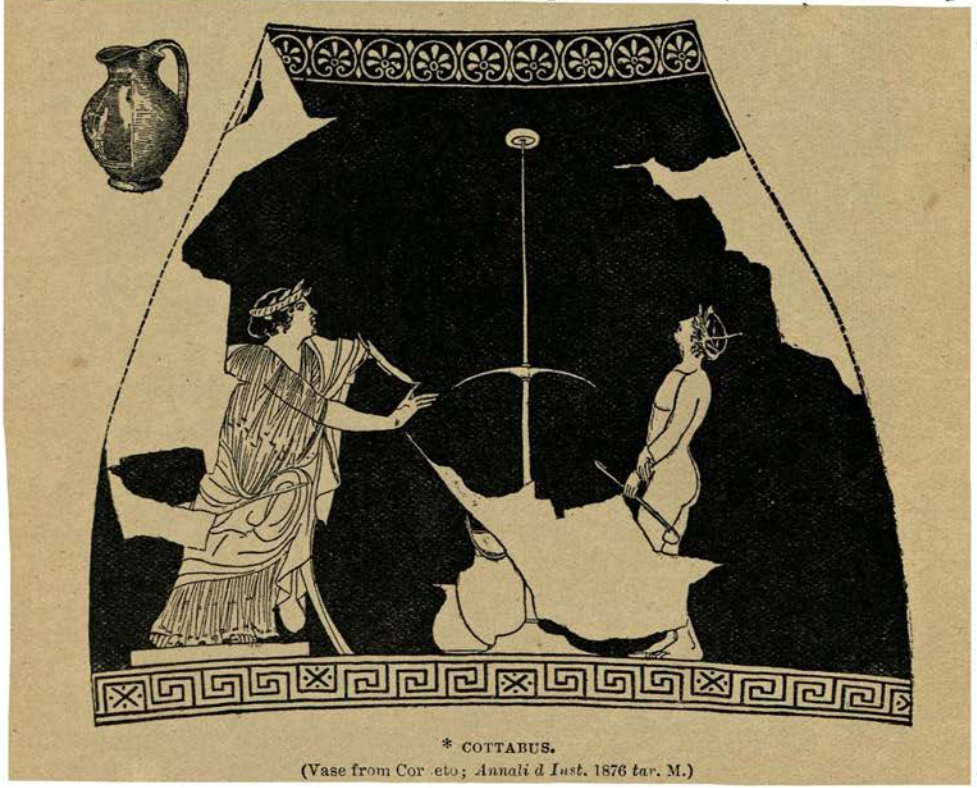
8C9 /(/4&'60(&;!3 8V9 /(/4&'=&;&. B 8?9 /(/4&'4&=&;!3

2*',/;;/A*1' (**D'6/1*;3'2*'*41*&=/0(3'./
.(*&.'2!3'30<*-.',(/6'&' /6&4'/('4&.!/4&;'
7/!4.'/,'=!*A'&41'.2*(*,/(*'>!=*3' &.!4'
*:0!=&;*4.3',/(' .2*' (**D'.*-24!-&;'.*(63'
!3' *0&67;*3'./!'2*' .&D*3',(/6'/;1*('
/6&4'A(!.!4>3'/(' 6&D*3' .2*6'2!63*;,'
!-*(/'A2/'7&33*1',/(' .2*' &0.2/(' !4' ;&.*'
&4.!:0!.5'03*1' .2*' 3&6*' (**D'/(!>!4&;' !4'
2!3' C'!" " "
/(40..!3'&; ' "" ' 4&.!=*'/,'
*7.!3'!4' ,(!-&' '7(/,*33/(' /,' .2*' ./!-'
72!;/3/725'A2/';!=*1'!4' /6*'!4'.2*'611;*'
/,' .2*' $3.'-*4.0(5' ' *'A&3'&',(!*41'/,'
.2*'7/*.3' 0-&4'&41' *(3!03'*37*-!&;;5'/,'
.2*';&..*('A2/3*'7/3.206/03'3&.!(*3'2*'7(*F
7&(*1',/(' 70<;!-&.!/4' *'A&3'<&4!32*1'
<5'*(/'!4' ?R',/(' 2!3'07(!>2.4*33'&41'
-/0(&>*' *'A&3'.2*'&0.2/(' /,'A/(D3'/4'
(2*./(!-'>(&66&(' &41'72!;/3/725' ,'2!3
,(/6'&'3!*>*'/(',(/6'&'32&6*,0;'-&7!.0;&F
.!/4' 2!3' &3'A/=*4'/,'>(&33'>(/A!4>'/4'
.2*'37/.'&41'-&;;*1' " '1 " D' 2*'
" ' : '/(' 'A&3'.2*'-(/A4'
/,'<&5'A/(4'<5'.2*'>*4*(&;'A2/'-*;*<(&.*1'
.2*';*3 *(.(!06726'&
2*' " ' '8,!>'9'A&3'/,'/&D';*&=*3'
&41'A&3'&A&(1*1',/(' 3&=!4>'&'-!.!Q*4 3';!,*'
!4' <&..;*' 2!3' 3*-0(*1',/(' !.3' 7/33*33/('
-*(.&!4' 7(!=!;*>*3'&3',(**1/6',(/6'.&0*3'
,/(' 2!63*;,'2!3',&.2*(' &41' 7&.*(4&;'>(&41F
,&.2*(' 2*' >/;1*4' " ' '8,!>'
C9'A!.2'*6<&..;*1'/(4&6*4.3'A&3'>!=*4'
,/(' .2*' 3./(6!4>'/,'&'A&;;'.2*' " ' 2
" '/(' '8,!>'V9'&;3/'/,'>/;1'&41'
/(4&6*4.*1'!4' !6!.&.!/4' /,' 7&;!3&1*3'./'
.2*'3/;1!*('A2/',!(3.'-;!6<*1'.2*'A&;;'/,'&4'
*4*653'-&67'.2*' " '' '8,!>'?9'
A!.2'/(4&6*4.3'(*7(*3*4.!4>'.2*'<*&D'/,'&

3 7 ./ .2 6&4 A2/ ,!(3 </&(1*1 & 2!7 41*(.2 67!(.2 >&(;&41 /, <&5 A&3 (*3*(=*1 *0-;03!=*;5 ,/(.2 *67*(/(' &41 .203 -&6 ./ <* (*>&(1*1&3&-(/A4 2 (&5*1 -(/A4 .2 " 1" / , .2 G1*!,!*1 *67*(/(3 A&3 4/ A/(4 <5 .2 *6F 7*(/(3 / , .2 $3 &41 @41 -*4.0(5 % (/;1*4 -(/A43 A*(/(!>!4&;;5 .2 ,(** G/,,*!"!4>3 /, 7(/=!4-!&;3 &41 &;;!*3 ./ =!-F ./(!/03 >*4*(&;3 ,/(.2 -*;*<(&.!/4 /, .2*!(.(!0 6723 0./ ,(/6 .2!3 03./6 .2*(* &(/3* *=*4 !4 (*70<;!-&4 .!6* .2 2&<!./, G-/67*;;!4> &-/4.(!<0.!/4 /, 6/4*5 . # Y " / .2 >/=*(4/(/, .2 7(/" A!4-* 0(!4> .2 !67*(!&; &> .2!3 G-/4.(!<0.!/4 A&3 /4 *0-*7.!/4&;/--&3!/43 G/,,*(*1 &3 &7(*3*4. ./ .2 *67*(/(3 <0. !. A&3 /, .*4 &;3/ 6&1* /6 70;3/(5 6/4> .2 (**D3 &-(/A4 . @ 1 %A&3 /, .*4 &4 *6<;*6 /, /,,!-* . .2*43 ,/(!43.&4-* &-(/A4 /, <&5 A&3 A/(4 <5 .2 &(-2/43 !4 /,!!-* .2 3*4&./(3 # 2 Y &41 .2 /(&./(3 A2!;* 37*&D!4> . A&3 &;3/ .2 *6<;*6 /, =!-./(5 &. .2 >&6*3 &41 &./D*4 /, 1!3.!4-.!/4 /,(' -!.!" 'Q*43 /, 6*(!.9 0-2 -(/A43 G/, 2/4/0(A*(6&1* /(!>!4&;;5 /, /;!=* <(&4-2*3 <0.;&.*(/, >/;1 V#2* 2/4/0(/, G&-(/A4 -/0;1 -/4,*((*1 <5 .2 7*/7;* /(' .2 3*4&.* /(' <5 -/(7/(&.!/43 &41 ,/(*!>4 B3.&.*3 2 ;&..*(A/0;1 /,.*4 7(*3*4. & G-(/A4 ./'.2 A2/;* -/66/4A*&;.2 , .2 7*/7;* /(' 3*4&.* 7(*3*4.*1 .2 -(/A4 .2 7(*3*4.&.!/4 ./D 7;&-* !4 .2 >(*&.'&33*6F <;5 /(' !4 .2 3*4&.* 2/03* <0. 4/. !4 .2 .2*&.(* *0-*7. <5 37*-!&;1*-(** !4-* -(/A43 7;&5*1 & -/43!1*(&<;* 7&(. W&3 /(4&6*4.3 &. (*;!>!/03 (!.*3 &41 &3 A*;; &. ,*3.!=&;3 &41 <&4:0*.3 .2 .(&1* /, G-(/A"6&D!4> 86/3.;5 !4 A/6*43 2&4139 %B=&3 4&.0(&;;5 *0.*43!=* 2 &(. /, 6&DF !4> A2&. A*(* -&;;*1 A!4.*(-(/A43 /, G1(5 ,;/A*(3 A&3 &;3/ 041*(3./!/1 (.!,!-!&; ,;/A*(3 6&1* /, .2!4 3.(!73 /, 7&!4.*1 A//1 A*(* &;3/ 03*1 1(/4;3 & ") /(7,;3 4.!3 !=!;!3 2 4&6* /, .2 '>(*& -/;;*-.!/4 /, &0.2/(!.!*3 /4 /6&4 ;&A 6&1* <5 .2 ;&A5*((!</4!&4 /, G !1 !4 &6725;!& &. .2 !43.&4-* /, .2 &3.*(4 67*(/(' 03.!4!&4 8V@U"??V 9 /' .2!3 -/;;*-.!/4 A* /A* .2 7(*3*(=&.!/4 G/, .2 .(*&30(*3 /, .2 &4-!*4.' K0(!37(0" "1*4-* A2!-2 603.-*(.&!4;5 .2*(A!3* 2&=* <**4 ;/3. 2 -/43!3.3 /, ,/0(7&(.3M 8$9 $ -' " " -&;;*1 8 " &3 <*!4> .2 (*=!3*1 *1!.!/4 /, & -/1* 4/A ;/3. <0. A2!-2 2&1 &77*&(*1 !4 V@T 2!3 A&3 70<;!32*1 !4 V C &41 -/4F .&!43 !4 .A*;=* </ /D3 .2* !67*(!&;; ;&A # " / (.2* " " / , .2* *67*(/(3 3!4-* &1(!&4 8@9 , / (9 1 2* ;&A /, .2* K0(!3.3 & 2*3* 70<;!32*1 V & (* *0.(&-.3 ,(/6 .2* A/(D3 /, .2!(.5"4!4* &4-!*4.K0(!3.3 &((&4>*1 !4 ,!,.5 </ /D3 &--/(1!4> ./ 30<K*-.3 8 9 '" " 2&41</ /D /, K0(!3F 7(01*4-* ,/041*1 6/3.;5 07/4 &!43 &41 70<;!32*1 !4 .2* 3&6* 5*&(8C9 > & " "' / (3077;*F 6*4.&(5 /(1!4&4-*3 /, 03.!4!&4 6/3.;5 !4 (**D 2*3* &(* 7(*3*(=*1 /4;5 !4 7(!=&.* -/;;*-.!/43 /, =&(!/03 -/67&33 /4* / , A2!-2 .2* (" / (; (" A&3 (*-/>4!3*1 &3 .2* &0.2/(!Q*1 .*0. &41 >!=*3 .2* (**D (*3-(!7.3 !4 & &.!4 =*(3!/4 ?(5<&&.?3 &9 ! " 2* 65.2!-&; &..*41&4.3 /, .2* 2(5>!&4 >/11*33 2*& 5<*;* A2/ A*(* 3077/3*1 ./ &--/67&45 .2* >/11*33 A!.2 A!;1 1&4-*3 &41 !4./O!F -&.!4> 603!- "A2!;* 32* "A&41*(*1 <5 ./(-2F ;!>2 /=*(.2* ,/(*3."-;&1 6/04.&!43 2* 426* A&3 ,0(.2*(>!=*4 !4 2(5>!& ./ .2* *040-2 7(!*3.3 /, .2* >/11*33 & /(5-03 8 (? .3 & 5 /36!& @ /.20(403 /(6/(* -/((*-.;5 $ 8 ((" (**D 4&6* ,/(& 2!>2 32/* /(<03D!4 A!.2 3*=*(&; 3/;*3 -/=*(*1 .2* A2/;* ,/. &41 (/3* &3 2!>2 &3 .2* 6!11;* /, .2* ;*> .A&3 6&1* 3/ &3 ./ ,!.* *!.2*(,/. &41 A&3 >*4*(&;;5 ,&3.*4*1 !4 ,(/4. A!.2 (*1 3.(&73 2* -/.20(403 A&3 7(/7*(;5 & 204.!4> </. <0. 8 3-25;03 6&1* !.' 7&(. /, .2* -/3.06* /, 2!3 .(&>!-' &-./(3 ./ >!=* .2*6' & 3.&.0(* &</=* .2* &=*(&>* .2* 3&6* .!6* .2* 2&!(A&3 1(*33*1 2!>2 !4 /(1*(./ 6&!4.&!4 .2* 7(/7(.!/4 /, .2* ,!>0(* 2* -/.20(F 403 A&3 &;3/ 03*1 !4 .2* /6&4 .(&>*15 & /-*73 9 /.. <03 & (**D >&6* =*(K 7/70;&(&.' 1(!4D!4> </0.3 2* 7;&5*(;&5 /4 .2* -/0-2 &41 !4 .2&.' 7/3!.!/4 .(!*1 .* .2(/A & ,*A 1(/73 /, A!4* !4 &3 2!>2 & -0(=* &3 7/33!<;* &. & 6&(D A!.2/0. 37!;;F !4> &45 /, .2* A!4* 2* 6&(D A&3 -B;*1 "'&41 A&3 &<(/4Q*>/<;*./(3&0-*(&41 !.' A&3 & 7/!4. ./ 6&D* & 4/!3* A2*(2!..!4> !. ' 4 .2* "" A&3 ,&3.*4*1 & ;!..;* !6&>* /(& <03. /, *(6*3 A2!-< A&3 -&;;*1 &4*3 &41 A2!-2 .2* 7;&5*(2&1 ./ 2!. ,!(3. A!.2 .2* A!4* 2* A!4* A&3 3077/3*1 ./ 6&D* & 3/041 </.2 !4 2!..!4> .2* ,!>0(* &41 !4 ,&;;!4> &,.*(A&(13 !4./ .2*

saucer. This of course greatly increased the difficulty of the game.

There was another form of the game in which the point was to make the wine hit the saucer while swimming in a large vessel of water, and sink it. The game was played in a round chamber made for the purpose. The form of the room was circular, to give every player an equal chance of hitting the mark, which was placed in the centre. The victor generally received a prize agreed upon beforehand. The players also used the game to discover their chances of success in love. They uttered the name of their beloved while throwing the wine. A successful throw gave a good omen, an unsuccessful one a bad omen. A good player leaned upon his left elbow, remained quite quiet, and only used his right hand to throw with. The game came originally from Sicily, but became popular through the whole of Greece, and specially at Athens, where to play well was a mark of good breeding. It did not go out of fashion till the 4th century after Christ. [The cut represents one of the several methods of playing the game.]



* COTTABUS.
(Vase from Cor eto; *Annali d Inst.* 1876 *tav.* M.)

Cŏtȳs (Gr. *Kŏtyttō*). A Thracian goddess, originally, it would seem, connected with Rhea Cȳbĕlē. Her worship was diffused over Greece and Italy, and was especially popular in Athens and Corinth. The licentious orgies associated with it, called *Cotyttĭa*, gave it a bad name.

Crāter. *See* VESSELS.

Crātēs (*Krātēs*). (1) A Greek comedian, who lived at Athens about 470 B.C. He was regarded as the founder of the Attic Comedy in the proper sense of the term, as his pieces were not, like those of his predecessors, mere lampoons on individuals, but presented subjects of a more general character. Only a few fragments of his plays have come down to us.

(2) *Crates of Mallŏs in Cilicia.* A Greek scholar, and adherent of the Stoic philosophy. He founded a school of interpretation at Pergămŏn. His principles were in direct opposition to those of Aristarchus; not only did he take an essentially different view of the Homeric text, but he favoured the allegorical method of exposition, to which the Stoics were so partial, and which was so disliked by the school of Aristarchus.

!3 -2!*, A/(D &3 &-/67(*2*43!=* -/6F 6*4.&(5 -(!.!-&, &41 *0*>*.!-&, /4 /6*(4 $?U 2* A&3 3*4. <5 D!4> ..&!43 /4 &4 *6<&335 ./ /6** (* 2*<(/D* 213 ;*> &41 A&3 .203 ,/(-*1 ./ 6&D* &;/4> 3.&5 * 03*1 2!3 *4,/(-*1 ;*!30(* !4 >!=!4> ;*-F .0(*3 A2!-2 >&=* .2* ,!(3. !670;3* ./ .2* 3.015 /, 72!;/;/>5 &41 ;!.*(&(5 -(!.!-!36 &6/4> .2* /6&43 4;5 &, *A, (&>6*4.3 /, 2!3 A/(D3 2&=* 30(=!=*1

(J.!443 # "! A&3 A!.2 471;,3 &41 (!3. 7 4*3 &*2!*, (*7(*3*4.&.!=* /, .2* ;1 /6*15 &. .2*43 * A&3 </6 !4 V@N &41 1!*1 !4 C@ .203 ,;/0(!32!4> !4 .2* &>* /, *(;-; 3 A2/ A&3 .2* 37*-!&; /<K*-. /, 2!3 &..&-D3 * A(/.* .A*4.5"/4* 7!*-*3 &41 >&!4*1 .2* 7(!Q* 4!4* .!6*3 2* ;&3. /--&3!/4 /4 A2!-2 2* A&3 =!-./(A&3 32/(.;5 <*,/(* 213 1*&.2 &41 .2* 1*,*&.*1 -/6*15 A&3 +($ /, (!3./72&4*3 (&.!403 7;&5 A&3 .2* , " /(H !4*" ,;&3D I !4 A2!-2 .2* 7/*. -/0(.*1 .2* (!1!F -0;* /, .2* 70<;!- <5 -/4,*33!4> 2!63*;, &2&(1 1(!4D*(!& A!. A&3 <(!;;!&4. <0. 6/(* -&03.!- .2&4 206/(/03 * 6&5 <* (*>&(1*1 &3 .2* ,/041*(/, 7/;!.!-&; -/6*15 4;5 .2* .!.;*3 &41 &, *A, (&>6*4.3 /, 2!3 7;&53 2&=* 30(=!=*1

82>/4 & " 8$9 ^!4>/, /(!4.2 &41 ,&.2*(/, ;&4-*‖3** - $8-/4-;03!/49 8@9 /4 /, 4**-<03 >(*&.">(&413/4 /, *4.2*03 <(/.2*(/, ;?-&3.` &41 ,&.2*(/, 3*6/4 &41 *4/*-*03 # &(.!-;*3 041*(.2*3* 4&6*39 * >/=*(4*1 2*<*3 &,.*(&,03 1*&.2 04.!; .2* -/6!4>/, 1,7,!3 &41 &>&!4&,.*(.2* ,&;;/, .*/-;*3 04.!; .2* ;&..*(3 3/4 & 1&6&3 -&6* /, &>* # 8 9 & * &41 / (7!1& 8 (**D D!41 /, 3&41&; </(F (/A*1 <5 .2* /6&43 ,(/6 .2* (**D3 &41 03*1 /(!>!4&;;5 <5 .2* /6&4 3/;1!*(3 . 2&1 &.2!-D 3/;* A&3 /, .2* 3&6* 32&7* ,/(*&-2 ,//. &41 2&1 ;/A ;*&.2*(E O (. = (3!1*3 A!.2 3.(&73 8 (!. 2 03*069 ,/(,&3.*4!4> (3;;&3 # & (**D &(.!3. </6 &. 51/4;&! 4 (*.* A2/ ,;/0(!32*1 &. .2*43 !4 .2* 3*-/41 2&;, / .2* V.2 -*4F .0(5 6/4> 2!3 -2!*, A/(D3 6&5 <* 6*4.!/4*1 8$9 &3.&.0* /, *(!-;*3 7(/F <&<;5 .2* /(!>!4&; /, .2* *0.&4. 7/(.(&!.* 3.&.0*3 /, .2*>(*&.3.&.*36&4 8@9 &3.&.0* /, & 6&4 6/(.&;;5 /!61*1 !4 A2!-2 .2* 3.(.!>>;* <*.A**4 1*&.2 &41 ;!, * A&3=!=!1;5 7 (.(&5*1 8 9 M " Q "* /, 72*303 & A/(D !4 A2!-2 2* 2&1 ./* -/6F 7*.* A!.2 2!1!&3 &41 /;5-;!.03 2!3 !3 >*4*(&;;5 3077/3*1 ./* <* .2* /(!>!4&; /, /4* /, .2* 3*=*(&; .57*3 /, M " Q " A2!-2 2&=* 30(=!=*1 (*3!;&3 3** 63 ./ 2&=* ,/;;/A*1 .2* .(&1!.!/4 /, 5(/4

(*.2*0R8 YB.2*.8!9 4 (**D 65.2/;/>5 .2* 3/4 /, ;03 &41 4&(.* .2* ,/041*(/, ;/;- 3 &41 <5 5(V ,&.2*(/, $/3/4 2 (*3 &41 65.2B/4 8 -* / $/&41 ((*03& # 8$9 .I @ " .K A C (!.;&3 # 4 .2*4!&4 &! 1!3F -!7;* /, -(&.*3 &41 /(>!&3 /, ./.!4! *A&3 /4* /, .2* 6/3. &--/67;!32*1 6*4 /, 2!3 .!6* &41 A&3 1!3.!4>0!32*1 &3 &7/*. &41 &4 /(&./(0. 2* !3 <*3. D4/A4 &3 .2* -2!*, /, .2* 2!(.5 5(&4.3 !4 B1*,*4-* /, A2/3* -&03* &>&!43. 2* !<*(&./(3 2* ,*;; !4 CNR (* A&3 .2* &0.2/(/, 3*=*(&; .(&>*1!*3 /6* ,(&>6*4.3 /, 2!3 7/*63 2&=* 30(=!=*1 .!* ;&(>*3. <*!4>, (/6 2!3 7/;!.!-&; *;*>!*3 * 3** 63 ./ 2&=* 2&1 .2* >!, /, *07(*33!/4 <0. ./ 2&=* A(!..*4 !4 & 2&(32 3.5;* /, -/67/3!.!/4

(1403 # " 4 (**D 65.2/;/>5 .2* 5/04>*3. 3/4 /, (403 &41 3*& A2/ 60.!;&.*1 &41 /=*(.2(*A 213 ,&.2*(&41 A!.2 .2* &33!3.&4-* /, 213 D!43,/;D .2* !.&43 6&1* 2!63*;, 3/=*(*!B /, .2* A/(;1 * .//D 213 3!3.*(2*& ./ A!,* &41 <*-&6* <5 2*(,&.2*(/, *3.!& *6*" .`(*(& &1*3 3*!1/4 &41 L*03 0. 2!3 6/.2*(7(/72*3!*1 .2&./4* /, 213 -2!;F 1(*4 A/0;1 /=*(.2(/A 2!6 * &--/(1!4>;5 3A&;;/A*1 .2*6 &;, *0-*7. L*03 A2/6 2*& 3&=*1 <5 & 3.(&.&>*6 L*03 A2*4 >(/A4 07 /<.&!4*1 .2* &33!3.&4-* /, .2* -*&4"4K(672 2 .!3!4 6&D!4> (/403 1!3F >/(>* 213 -2!;1(*4 &41 .2*4 A!.2 .2* 2*;7 /, 213 D!43,/;D /=*(7/A*(*1 (/403 &41 .2* !.&43 --/(1!4> ./ /4* =*(3!/4 /, .2* ,&<;* (/403 A&3 !67(!3/4*1 !4 &(.(03 G !.2 .2* !.&43 &--/(1!4> ./ &4/.2*(2* A&3 (*-/4-!;*1 A!.2 L*03 &41 (*!>4*1 A!.2 2&1&6&4.253 /4 .2* 3;&413 /, .2* ;*33*1 (/403 3** 63 /(!14&;;5 ./ 2&=* <**4 &>/1 /, .2* 2&(=*3. "=(!!*4-* !.' 2&77*43 .2&.' !4 6&45 7&(.3 /, (**-* .2* 2&(=*3. 6/4.2* A&3 -&;;*1 (14 4 !3 4&6* <*!4>* *&3!;5

-/4,03*1' A!.2' .2&.' /,' 2(?4?3' 8H !6*I9' 2*' A&3' &,.*(A&(13' *((/4*/03;5' (*>&(1*1' &3' .2*' >/1' /,' .!6*' 4' A/(D3' /,' &(.' 2*' A&3' (*7(*3*4.*1' &3' &4' /;1' 6&4' A!.2' &' 6&4.;*' 1(&A4' /=*(' .2*' <&-D' /,' 2!3' 2*&1' &41' 2/;1F !4>' &' 3!-D;*' !4' 2!3' 2&41' 2*' /6&43' !1*4.!,!*1' 2!6' A!.2' &.0(403' .2*!(' >/1' /,' 3/A!4>' 83**' $))

(57.*!&' .3 1' ' D!41' /,' 7/;!-*' 6&!4.&!4*1' &.' 7&(.&' A!.2' .2*' 7(!4-!7&;' /<!(*-.' /,' A&.-2!4>' .2*' *;/.3' 2*' 3*(=!-*' A&3' 6&44*1' <5'5/04>' 7&(.&43' &77/!4.*1' &440&;;5' ,/(' .2*' 70(7/3*' <5' .2*' 72/(3' &41' .2*!(' 10.5' A&3' ./' 70.' 1&4>*(/03' /(' &77&(*4.;5'1&4>*(/03' *;/.3' /0.' /,' .2*' A&5' A!.2/0.' 6/(*' &1/' ' ;&.*(' &41' *((/4*/03' !1*&' (*7(*3*4.*1' .2*' (57.*!&' &3' &' 60(F 1*(/03' -2&3*' /,' .2*' *;/.3' &440&;;5' -/4F 10-.*1' <5' .2*' 7&(.&4'5/0.2

! "!#$.3 1' ' % %&%

.*3!&3' & ' ' (**D' 2!3./(!&4' </6' !4' 4!103'!4' &(!&'&41'&'-/4.*67/(&(5' /,'],!4/72/4' *' <*;/4>*1'./'.2*',&6!;5'/,' .2*' 3-;*7;,.13*' &.' 4!103' 4' C$?' ' 2*' -&6*'./'.2*' *(3!&4' -/0(.'&41' <*-&6*' 7(!F =&.*' 7253!-!&4'./'^!4>' (.&0*(0*3' 4*6/4' 4' .2!3' -&7&-!.5' 2*' &--/67&4!*1' .2*' D!4>' /4' 2!3' *07*1!.!/4' &>&!43.' 2!3'<(/.2*(' 5(03' &41' -0(*1' 2!6' /,' .2*' A/041' A2!-2' 2*' (*F -*!=*1' !4' .2*' <&..;*' /,' 04&0&' ' CN$' 4' TT' 2*' (*.0(4*1'./' 2!3' 4&.!=*' -!.5' &41' A/(D*1' 07' .2*' =&;0&<;*' 6&.*(!&;' A2!-2' 2*' 2&1' -/;;*-.*1' 10(!4>' 2!3' (*3!1*4-*' !4' *(3!&' 7&(.;5' ,(/6' 2!3' /A4' /<3*(=&.!/4' &41' 7&(.;5' ,(/6' 2!3' 3.015' /,' .2*' (/5&;' &(-2!=*3' !4./' &' !3./(5'/,' *(3!&.' 1' !4' .A*4.5".2(**' </!D3' 2*' A/(D' A&3' A(!..*4' !4' .2*' /4!-' 1!&;*-.' 2*' ,!(3.' 3!0' </!D3' .(*&.*1' .2*' 2!3./(5'/,' 335(!&' .2*' (*6&!4!4>' /4*3' .2&.' /,' *(3!&' ,(/6' .2*' *&(;!*3.'.!6*3' ./' *=*4.3' A!.2!4' 2!3' /A4' *07*(!*4-*' .*3!&3' A/(D' A&3' 60-2' 03*1' <5' .2*' &4-!*4.' 2!3./(!&43' .2/0>2' 2*' A&3' -*430(*1' &3' 04.(03.A/(.25' &41' !41!,,*(*4.' ./' .(0.2' &' -2&(>*' A2!-2' 6&5' <*' 10*' ./' .2*' ,&-.' .2&.' 2*' ,/;;/A*1' *(3!&4'&0.2/(!.!*3' &41' .203' /,.*4' 1!,,*(*1' ./' .2*' 1!3&1=&4.&>*' /,' .2*' (**D3',(/6' .2*' =*(3!/4' /,' ,&-.3' -0((*4.' &6/4>' 2!3' -/04.(5F 6*4' 4;5',(&>6*4.3' &41' *0.(&-.3' /,' .2*' </!D' 30(=!=*' 2*' 3&6*' !3' .(0*' /,' 2!3' '" '/(' 4/.!-*3' /,' .2*' /<3*(=&.!/43' A2!-2' 2*' 2&1' 6&1*' !&' *(3!&' /4' .2*' >*/>(&725' &41' 7(/10-.!/43' /,' 41!&

!!<!-. ;&(;&3' 8 &.!49' -2&6<*(;&!4' '

.!<!-.!;06' 8 &.!49' <*1"-2&6<*(' '/)

,!-4;;43' 8 &.!49' 2//1" '

!!4>&3' '

,!7!1/' 8H' *3!(*' I9' 2*' &.!4' 7*(3/4\' ,!-&.!/4' /,' (/3' /(' .2*' >/1' /,' /=*

0(&' 2*' &.!4' .*(6',/(' .2*' 307*(!4' .*41*4-*' /,'&'37*-!&;'1*7&(.6*4.' /,'<03!4*33' 30-2' &3' .2*' 1!3.(!<0.!/4' /,' -/6'& "" " [6&D!4>' /,'(/&13'(*>0;&.!/4' /,'A&.*(-/0(3*\' &:0*10-.3' &41' .2*' ;!D*' 2*' /,; -*(3' *(' .(03.*1' A!.2' .2*3*' 37*-!&;' 10.!*3' A*(' .*(6*1' ! 4' .2*' (*70<;!-&4' &>' .2*5'A*(*' - ' " ' 4' .2*' -!=!;' ;&=' '1*4/.*3' .2*' >0&(1!&432!7' /,'&' 6&16&!' &E '/(' &'37*41.2(!,.'& 1 ' 2' $ <'2@(' 6&4&>*1' 2!3'7(/7*(.5'&41' (\' 7(*3*4.*1' 2!6'&.' ;&A' A&3' /(!>!4&;;5' .2!' 4*0.' 1" '<0.'&,.*(A&(13'2*' A&3' &;A&5' &77/!4.*1' <5' .2*' &0.2/(!.!*3' !4-*' @N8 4 '!.' A&3' &;3/'-03./6&(5'./'&77/!4.' ' ',/(' 5/04>' 7*(3/43' 041*(' . *4.5",!=?' 041*(' -*(.&!4' -/41!.!/43' ./' 7(/.*-.' .2*4' &>&!43.' <*!4>' /=*((*&-2*1' !4',;*>&;' 7(/-**1' !4>3' (/6' .2*' .!6*' /,' &(-03' 0(*;!03' A2/' 6&1*' .2*' ;*>&;!.5' /,' -*(.&!4' .(&43' &-.!/43' 1*7*41*4.' /4' .2*' -/"/7*(&.!/4' /,' ;' '.2*' ' " '<*-&6*'&' 3.&41' !4>'!43.!.0.!/4

0(*.>3'&9 ' 4' (*.&4' 65.2/;/>=' .2*' 0(*.*3' A*(*' 1*6!">/13' &(6*1' A!.\' A*&7/43' /,' <(&33' ./' A2/6' .2*' 4*A"<//(' -2!;1' L*03' A&3' -/66!..*1' <5' 2!3' 6/.2*!' 2*&' ,/(' 7(/.*-.!/4' &>&!43.' .2*' A!;*3' /!' (403' 2*5'1(/A4*1' .2*' -(!*3' /,' .2\' -2!;1' <5'3.(!D!4>' .2*!(' 37*&(3' &>&!43.' .2*!!' 32!*;13' 2*5'>&=*' .2*!(' 4&6*' ./' .2*' 7(!*3.3' /,' .2*' (*.&4' >/11*33' 2*&' &41' /,' .2\' 13*&4' L*03' A2/' 7*(,/(6*1' 4/!35' A&(' 1&4-*3'&.' .2*',*3.!=&;3' /,' .2/3*' 1*!.!*3

0(!&' 8 &.!49' 2*' 4&6*' /,' .2*' .2!(.\' 1!=!3!/43'!2./'A2!-2' .2*' .2(**' 3 ' /,' .2\' /6&4'7&.(!-!&43'A*(*' 1!=!1*1' ,/(' 7/;!.!-3' &41'(*;!>!/03'/<*-.3' =*(5' '-/4.&!4*1' &' 406<*(' /,' 1 " ' 3077/3*1' ./'<*' *0&-.;5' .*4' &41' &' 7(*3!1*4.' ' A2/3*' 10.5' !' A&3' ./' ;//D' &,.*(' !.3' 3*-0;&(' &41' (*;!>!/0!' <03!4*33' ./' 2*' 2*&1' /,' &;' .2*' 3./-!' .2*' $ ' - ' A2/' &3'-2&(>*.' A!.2' .2*' 4/.!,!-&.!/4' /,' .2*'-/66/4',*3.!=&;' A ' &41' A ' < ' .2*3*' A/(13' 2*' 3*7&(&.*' " ' A*(*' -2/3*4' <5' .2*!' (*37*-.!=*' -0(!&*' &41' .2*' $ ' - ' A&3' *;*-.*1' <5' .2*' 7*/7;*' !4' 37*-!&;' = ' /0.' /,' .2*' 406<*(' /,' " ' /(' !.' 37*-!&;' 3&-(!,!-*3' *=*(5' ' 2&1' !.3' 7;&4' /,' 6**.!4>' <*&(!4>' .2*' 3&6*' 4&6*' A!.2'!2*&(.2' &41' 1!4!4>"2&;;' A2*(*' .2*' 6*6<*(' 6*.' ./' ,*&3.' &41' 3&-(!,!-*' 2*' 7;*<*!&4' 3**6' ./'2&=*' <**4'&16!..*1' ./' .2*' 3&-(!,!-*3' A2!-2' A*(*' /,,*(*1' /4' <*2&;' /,' .2*' A2/;' 7*/7;*' &41' A*(*' 7&!1' ,/(' &.' .2*' *07*4&

/ , .2* 3.&.* 83** ,0(.2*(" 0A 0 ! , 9 2* .*(6 A&3 &;3/ &77;!*1 ./ -*(.&!4 </03*3 !4.*41*1 ,/(2/;1!4> 6**.!4>3 &3 ,/(!43.&4-* .2* /,! -!&; (*3!1*4-* / , .2* &;;, /4 .2* &;&.!4* &41 *37*-!&;;5 .2* 3*4&.*"2/03* $ <0!;.<5 D!4> /3.!;!03 /4 .2* <"" &41 <0(4.1/A4 V@ 4 !.3 7;&-* &03.03 0;;& .2* 3/4 / , .2* !-.&./(*(*-.*1 .2* $ $ 3*3&(!4.*((07.*1 .2* 7(/>(*33 / , .2!3 A/(D . / 3*. 07 .2* $!4 !.3 7;&-* 2*4 .2* 3*4&.* 6*.!4 .2* $, !4 .2* *4.(&4-*"2&;; / , / 6 7*5 3 .2*&.(* A2*(* 3*3&(A&3 6 0(1*(*1 2* $. A&3 4 .<*>04 .!;; CC 32/(.;5 d<*,/(* &*3&(3 1*&.2 &41 A&3 -/43*-(&.*1 !4 @T <5 0>03.03 # 7;&4 /, / 6&4 .D 041*( )& 0(!/ ") 0(/.(17213 8 (G / (/ 9 H 40(3* %/, -2!;1(*4 I 2* .!.;* / , 3*=*(&; (**D >/11*33*3 , /(!43.&4-* &*&A2/ A*(* (*F >&(1*1 &3 7(/.*-.(*33*3 / , 5/0.2 0(.!43 0,03 &T " / 6&4 2!3./(!&4 A2/ 7(/<&<;5 ;!=*1 &41 7(&-.!3*1 %&3 &(2*./(!-!&4 &</0. .2* 6!11;* / , .2* $3. -*4.0(5 &41 A(/.* &2!3./(5 / , ;*0&41*(.2* (*&. !4 .*4 </!D3 !4 .2* (*!>4 / , ;&01!03 . CC"VC9 2* ,!(3. ".A </!D3 &(* ;/3. &41 .2* ,!,.2 60.!F ;&.*1 &. .2* *41 .2* 3!0.2 &. .2* <*>!4F 4!4> *3** 63 ./ &!6 6/(* &. (2*./(!-&; %*,,*-. .2&4 &. 2!3./(!-&; &--0(&-5 4 .2* 03* / , 2!3 &0.2/(!.!*3 2* !3 04-(!.!F -&; &3 2* , /;;/A3 04.(03.A/(.25 A(!.*(3 ;!D* ;!.&(-203 D4/A!4> .2*6 ./ <* 04F .(03.A/(.25 !3 A/(D -/4.&!43 6&45 *(((/(3 !4 >*/>(&725 &41 -2(/4/;/>5 &41 2!3 &--/04.3 / , .2* <&..;*3 32/A .2.& 2* 2&1 4/ 6!;!.&(5 D4/A;*1>* 0. 2* 041*(3.&413 .2* &(. / , !4.*(*3.!4> 2!3 (*&1*(3 <5 & 7;*&3&4. 4&((&.!=* &41 ;!,*;!D* 1(&A!4> &41 .2*(* !3 & -*(.&!4 -2&(6 !4 .2* 406*(/03 37**-2*3 A2!-2 2* 2&3 !43*(.*1 !4 2!3 .*0. !4 37!.* / , .2*!(3.(/4> (2*./(!-&; -/;/0(F !4> !3 ;&4>0&>* (*6!413 03 / , !=5 . !3 -0(!/03 .2&. 2* !3 4*=*(6*4.!/4*1 !4 &4.!:0!.5 K.!;../ & : (1 5<`<* .9<`;* - 5-;!- /*.3 B-;/7*3 &9: , (**D 65" G.2/;/>5 .2* (/041"*5*1 /4*3 --/(1!4> ./ *3!/1 .2* 5-;/7*3 &(* .2* >!>&4.!- 3/43 / , (,.403 &41 &*&4&6*1 =>/3 .*(/7*3 &41 (/4.*3 /(.2* (*3. .2*5 (*3*6<;* .2* >/13 *0-*7. .2&. .2*5 2&=* /4;5 &3!4>;* *5* !4 .2*!(,/(*2*&1 2*!(G,&.2*(.2(*A .2*6 !4./ &(.&(03 &41 .2*5 &33!3.*1 (1403 ./ .2* 3/=*(*!>4.5 (/403 2/A*=*(70. .2*6 &>&!4 !4 7(!3/4 A2*(* .2*5 (*6&!4*1 04.!; L*03 3*. .2*6 ,(** /(.2!3 .2*5 >&=* 2!6 .2* .2041*(&41 ,/!;*1 2!6 .2* ;!>2.4!4> 7/;;/ 3;*A .2*6 A2*4 L*03 3.(0-D 2!3 3/4 ;*7 03 <5 ;!>2.4!4> 4 /6*(.2* 5-;/7*3 ;!D* .2* >!&4.3 &41 .2* 2&*&-!&43 &(* .2* D!43,/;D / , .2* >/13 <0.!4 /.2*((*37*-.3 .2*5 2&=* 4/F .2!4> !4 -/66/4 A!.2 .2* 5-;/7*3 /, *3!/1 <0. .2*!(>!>&4.!- 3!Q* &41 3.(*4>.2 2*5 ;!=* & 7&3./(&; ;!,* !4 .2* ,& (*3. A!.2/0. D4/A;*1>* /, &>(!-0;.0(* ;&A 6/(&;3 /(3/-!&; (1*(&-2 1A*;;3 3*7&(&.*;5 A!.2 2!3 ,&6!;5 !4 -&=*(43 &. .2* 6/04.&!4 ./73 A!.2/0. .(/0<;!4> 2!6F 3*;, &</0. .2* >/13 ./ A2/6 !41**1 .2* 5-;/7*3 1** 6 .2*2!3*;=*3 *&3!;5 307*(!/(!4 3.(*4>.2 2* 2&*&-!&43 03*1 ./ ;!=* !4 .2*!(4*!>2</0(2//1 <0. A*(* 1(!=*4 <5 .2*!(=!/;*4. 1*&;!4> ./ *6!>(&.* 2* ,!>0(* / , 1;572*603 *;; D4/A4 ,(/6 2!3 *4-/04.*(A!.2 1533*03 >!=*3 & .57!-&; 4/.!/4 / , .2*!((01*4*33 &41 3&=&>*(5 & &;3/ @ 2* /6*(!- 5-;/F 7*3 A*(* !4 &;.*(&>* ;/-&;!Q*1 !4 !-!;5 &41 -&6* ./ <* !1*4.!,!*1 A!.2 .2* 5-;/7*3 / , *3!/1 2*5 A*(* "!6&>!4*1 & &33!3.F &4.3 / , *72&*3.03 &41 &3 2*;7!4> 2!6 ./ ,/(>* ;!>2.4!4>3 ,/(L*03 &41 &(63 ,/(2*(/*3 !4 .2* </A*;3 /, .4& /(/4 .2* B/;!&4 !3;&413 .2!(1 =&(!*.5 7, 5-;/F 7*3 A*(* .2* >!&4.3 A!.2 &(63 ./ .2*!(<*;;5 - A*;;3 &3 ./ .2*!(32/0;1*(3 A2/6 (/*.03 A&3 3077/3*1 ./ 2&=* <(/0>2. ,(/6 5-!& ./ (>/3 . A&3 .2*5 A2/ A*(* 077/3*1 ./ 4&=* <0!;. .2* 3/"-&;;*1 5-;/7*&4 A&;3 &. 5-*4&* &41 !(543 & 5/A P 4 A/(D3 /, &(. .2* 5-;/7*3 &(* (*7(*3*4.*1 &3 >!&4.3 A!.2 /4* *5* !4 .2*!(,/(*2*&1 .2/0>2 .2*(* !3 >*4*(&;5 &4 !41!-&./4 /, & 7&!(/, *5*3 !4 .2* 030&; 7;&-* 5-40 & : " /(H A&4 I 8$9 2* 3/4 /, (*3 &41 ;<7.& A2/ .2(*A 2!6F 3*;, !4 .2* A&5 /, ?(&-;*3 !4 (&-2!3 A2*4 .2* 2*(/ A&3 /4 2!3 A&5 ./ *50 --/(1!4> ./ &4/.2*(3./(5 *(&-;*3 A&3 3*4 &>&!43. 5-403 <5 7/;;/ <*-&03* 2* ;&5 !4 A&!. ,/(.2* 7(/-*33!/43 /4 .2*!((/&1 ./ *;72! 4 .2* -/4.*3 <*.A**4 .2*6 & 1*3-(!<*1 <5 *3!/1 !4 2!3 ((*3 3.//1 &. .2* 3!1* /, 2!3 3/4 A2!;* *(&-;*3 A&3 3077/(.*1 <5 .2*4* &41 2!3 ,&!.2,0;; ;U;J..3 *(&-;*3 3;*A 5-403 &41 *=*4 A/041*1 (*3 A2*4 .2* ;&..*(&..*67.*1 ./ &=*4>* .2* ,&;; / , 2!3 3/4 5-403 A&3 <0(!*1 A!.2 &;; 10*

2/4/0(3 <5 2!3 ,&.2*("!4";&A *50 <0. 7/;;/ 1*3.(/5*1 .2* ./6< <5&4 !4041&F .!/4 /, .2* (!=*(4&0(03 2*(* A&3&3/4 /, (*3&41 5(*4* A2/ </(* .2* 3&6*4&6*&41 2* ./ /A&3 3&!1 ./ 2&=*,&;;*4 !4-/6<&. &>&!43. *(&-;*3 (*3 &..*67.*1 ./ &=*4>* 2!3 3/4 A2*4 L*03 <5&,;&32 /, ;!>2.4!4> 3*7&(&.*1 2!3 &4>(5 -2!;1(*4 ,.*(2!3 1*&.2 3&!1 .2* 3./(5 5-403 A&3 -2&4>*1 <5 2!3 ,&.2*(!4./ &3A&4

8@9 2* 3/4 /, <3*!1/4 &41 &;5-* * A&3 *07/3*1 <5 2!3 6/.2*(/4 .2* 3*&"32/(* &41 ,/041 <5 3/6* ,!32*(6*4 A2/ 4&6*1 2!6 5-403 <*-&03* .2*5 3&A &A&4 ,;5!4> (/041 2!6 * A&3 !4=0;4*(&<;* 4&1 /, >!>&4.!- 3.(*4>.2 &41 3.&.0(* 2!3 2*&1 8/(&--/(1!4>./ &4/.2*(&--/04. 2!3 A2/;* </159 A&3 &3 A2!.* &3 34/A * <*-&6* D!4>/, /;/43* !4 .2* (/&1 &41 A&3 .A!-* 6&((!*1 3;&41*(/03 0..*(&4-* /, 2!3 3*-/41 A!,* 3.04> 2!6 ./ ,0(5 &>&!43. .2* -2!;1(*4 /, 2!3 ,!(3. A!,* A2/6 2* .2(*A !4./ .2* 3*& !4 & -2*3. 2*5 A*(* -&3. 07 &;!=* /4 .2* !3;&41 /, 4 1 3 A2*(* *4*3 A&3 D!4> .& ;&.*(.!6* 5-403 (*7*4.*1 /, 2!3 1**1 3/0>2. ,/(2!3 3/4 &41 6&(-2*1 A!.2 2!6 ./ .2* &!1 /, .2* (/K&43 &>&!43. .2* (**D3 2*5 7(*F =*4.*1 .2* (**D3 ,(/6 ;&41!4>* <0. </.2 A*(* &. ;&3. 3;&!4 <5 -2!;;*3 A2/ 3.(&4F >;*1 .2* !4=0;4*(&<;* 5-403 A!.2 2!3 /A4 2*;6*. 3.(&7 * A&3 -2&4>*1 <5 /3*!1/4 !4./ &3A&4

51!77* # : 2* 2*(/!4* /, &=*(5 7/70;&((**D ;/=*"3./(5 A2!-2 A&3 .(*&.*1 <5 &;;!6 -203 !4 &7/*6 4/A 04F ,/(.04&.*;5 ;/3. 2* ;&.*((**D 7(/3* (/6&4-*3 A*(* ,/041*1 07/4 .2!3 =*(3!/4 51!77* A&3 .2* 1&0>2.*(/, &A*;;"</(4 .2*4!&4 . 2&77*4*1 .2&. 32* &41 -/4.!03 &5/0.2 ,(/6 .2* !3;&41 /, ?/3 A2/ A&3 !4 ;/=* A!.2 2*(2&1 -/6* &. .2* 3&6* .!6* ./ &,*3.!=&;/, (. 6!3&. *;/3

51!77* A&3 3!..!4>!4 .2* .*67;* /, (.*F 6!3 A2*4 -/4.!03 .2(*A &. 2*(,**. &4 &77;* /4 A2!-2 A&3 A(!..*4 H 3A*&(<5 .2* 3&4-.0&(5 /, (.*6!3 .2&. A!;;A*1 -/4.!03 I 51!77* .//D 07 .2* &77;* &41 (*&1 .2* A/(13 &;/01 .2*4 .2(*A !., (/6 2*(&41 .//D 4/4/.!-* /, -/4.!03 &41 2!3 &11(*33*3 ,.*(.2!3 2*(,&.2*(A!32*1 /4 3*=*(&;/--&3!/43 ./>!=* 2*(!4 6&((!&>* <0. 32* &;A&53 ,*;;* !;;<*,/(* .2* A*11!4> 2* ,&.2*(-/430;.*1 .2* *;72!- /(&-;* A2!-2 (*=*&;*1 ./ 2!6 .2&. .2* !;;4*33 /, 2!3 1&0>2.*(A&3 10* ./ .2* A(&.2 /, (.*F 6!3 <5 A2/3* 32(!4* 32* 2&1 3A/(4 &41 <(/D*4 2*(/&.2 * &--/(1!4>;5 >&=*+ 2*(./ -/4.!03 ./ A!,*

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&.!4 *--;*3!&3.!-&;* A(!.*(</6 !4 ,(!-& &. .2* <*>!44!4> /, .2* R(1 -*4.0(5 /, &' (*37*-.&<;* 7&>&4 ,&6!;5 (!>!4&;;5 & .*&-2*(/, (2*./(!- 2* A&3 -/4=*(.*1 &41 6&1* !32/7 /, &(.2&>* !4 @CR * A&3 <*2*&1*1 10(!4> .2* 7*(3*-0.!/4 041*(&;*(!&4 !4 @VU 4 2!3 406*(/03 A(!.F !4>3 &41 *02/(.&.!/43 2* 4/. /4;5!6!.&.*3' *(.0;;!&4 8A2/6 2* &-D4/A;*1>*3 &3 2!3' 6&3.*(9 <0. 6&D*3 >(*&. 03* /, 2!3 /(D3 *3!1*3 .2*3* A* 2&=* &;&(>* -/;;*-.!/4 /, 2!3 ;*..*(3 &11(*33*1 ./ !41!=!10&;3 &41 ./ -20(-2*3

f8@9 $: "+ "<!32/7 /, /0;/4 A2/ ;!=*1 10(!4> .2* ;&3. :0&(.*(/, .2* V.2 &41 ,!(3. 2&;, /, .2* ?.2 -*4F .0(!*3 *"A&3 !4 &;; 7(/<&<!;!.5 .2* &0.2/(/, & 6*.(!-&; &.!4 *7.&.*0-2 *1!.*1 7!*-*6*&; <5 /(*; &(.*4* &41 !.(&' -(!.!-&;;5 (*=!*A*1 <5 $RRR9 &5/(&6<(!1>* $RRR9

5(*4* # : " 3 %$ /;*03 # :Q) 7

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&*1&;& 8H A//1*4 !6&>*3!9 7*-0;!&(,*3.!=&; 2*;1 <5 .2* /*/.!&43 !4 2/4/0(/, *(& 2* >/11*33 2&1 &-/(1!4>./ .2* 3./(5 /4-* :0&((*;;*1A!.2 L*03 &41 2!11*4 2*(3*;; /4 /04. .23*(/4 *(203<&41 .2*4 37(*&1 .2* (*7/(. .2&. 2* A&3 >/!4> ./ 6&((5 &4/.2*(A!,* &41 2&1 &4 !6&>* /, /&D"A//1*-D*1 /0. !4 <(!1&;& ..!(* &41 -&((!*1 /=*(!.2&*(/4 /4 & -2&(!/.A!.2 & 406*(/03 .(&!4 &6!1 .2* 3!4>!4> /, 6&(F (!&>* 2566 43 *(& !4 2*(K*&;/035 .2(*A 2*(3*;; 07/4 2*(3077/3*1 (!=&; <0. /4 1!3F -/=*(!4> .2* .(!-D (*-/4-!;*1 2 (3*;; A!.2 ;&0>2.*(./ L*03 .//D 2*(3*&. /4 .2* -2&(!/. &41 ,/041*1 .2* ,*3.!=&; !4 6*6/(5 / .2* !4-!1*4 2* ,*&3. A& -*;*<(&.*1 *=*(5 3*=*4 5*&(3 <5 .2* ;&.3*&43 &;/4* &41 -&;;*1 .2* ;!..;* &*1&;& 0. *=*(5 3!O.!*.2 5*&(&;; .2* -!.!*3 0 .2* -*/.!&O ,*1*(&.!/4 D*7.!.& 3 .2* >(*&. 3*1&;& >0!1*1 <5 .2* 4/.*/ /, &<!(1 .2*5 ,!O*1 /4 &(.(** !4 & >(/=*/ /, /&D3 &41 -0. & ,!>0(* /0. /, !. A2!-2 .2*5 1(*33*1 !4 <(!1&; &..!(* &41 .//D &3 !4

6&((!&>*' 7(/-*33!/4'./'.2*'./7'/,' !.23*(/4'
('.2*5'/,!,*(*1'&'>/&.'./'L*43'&41'&'-/A'
./' *(&'&41'd<0(4.'.2*'!6&>*' A!.2'.2*'
/,,*(!4>' .'.2*'>(*&.' 3*1&;&'!!*!6&>*3'
6&1*'&.'.2*';!..;*' 3*1&;&'A*(*'1!3.(!<0.*1'
<5'/.'&6/4>'.2*'-!.!*3'/,'.2*' /*/.!&4'
-/4,*1*(&-5'&41'.2*'3&6*'7(/-**1!4>3'A*(*'
.2*4'(*7*&.*1
&*1J;;A' (/.2*('/,' *50'& ' " *# '
.2(*A'2!63*;,'1/A4',(/6'&'(/-D'/4' &(F
4&3303',/('>(!*,'&.'.2*'1*&.2'/,'2!3'1&0>2F
.*(' 2 4*'&41'A&3'.0(4*1'<5'.2*'>B3'
!4./'&'2&AD
3*1J;43'& ' -044!4>'&(.!,!-*('I9' 2*'
65.2!-&;' (**D'(*7(*3*4.&.!=*'/,'&;;'2&41!F
A/(D'*37*-!&;;5'/,' ..!-'&41' (*.&4'
&(.' 3' 30-2' 2*' A&3'A/(32!77*1'
<5'.2*'&(.!3.3'>0!;13'*37*-!&;;5'!4'
..!-&' *' A&3'3&!1'./'<*'.2*'3/4'
/,' .2*' .2*4!&4' *., 4' 3/4' /,'
07&;J6 03'8.2*'(*&15"2&41*19'&41'
>(&413/4'/,' (*-2.2*03' *' A&3'
3077/3*1'./'2&=*'<**4' .2*',!(3.'
&(.!3.'A2/'(*7(*3*4.*1'.2*'206&4'
,!>0(*'A!.2'/7*4'*5*3'&41',**.'&41'
&(63'!4' 6/.!/4' *3!1*3'<*!4>'
&4'*0-*;;*4.'&(-2!.*-.'2*'A&3'3&!1'
./' 2&=*' !4=*4.*1' 6&45' !67;*F
6*4.3'.2*' &0*' ,/('!43.&4-*'.2*'
&A;' &41'G.2*'<*=*;' !3' 4*72*A'
&41'707!;'83/4'/,'2!3'3!3.*(' *(1.09'
&77*&(*1' ;!D*;5'./' 30(7&33'2!6'!4'
(*&1!4*33'&41'/(!>!4&;!.5' 2*'!4F
=*4.!/4'/,'.2*'3&A'A2!-2'2*'-/7!*1'
,(/6'.2*' -2!4</4*' /,' &' 34&D*' /,'
.2*'7/..*(3' A2**;' /,'.2*' .0(4!4>'
;&.2*' &41' /,' /.2*('.2!4>3' /,' .2*'
D!41'A&3'&..(!<0.*1'./'2!6' 3*1&"
;03' A&3' 3/' K*&;/03' /,' 2!6'.2&.'
2*'.2(*A'2!6',(/6'.2*' -(/7/;!3'
&41'<*!4>'1*.*-.*1'!4' .2*' &-.' /,'
<0!5!4>'.2*'</15'A&3' -/41*64*1'
<5'.2*' (*/7&>03'&41',;*1'./' (*.*'
./'D!4>' !4/3' *(*'&6/4>'/.2*('
.2!4>3' 2*' 6&1*' .2*' ;&<5(!4.2' &.'
4/303',/('.2*' !4/.&0(' *'&41'
2!3' 3/4' -&(03' A*(*' .2*63*;=*3'
-/4,!4*1' !4' !.' <*-&03*' 2*' 2&1'
>!=*4' (!&14*' .2*' -;0*' A!.2' A2!-2' 32*'
>0!1*1' 2*3*03' .2(/0>2' .2*' 6&Q*' 0.'
.2*',&.2*('&41'3/4' 30--**1*1' !4' *3-&7!4>'
&41',;*1'/=*('.2*' 3*&' 07/4' A!4>3' /,' A&0'
,*&.2*(3'6&1*'<5' 3*1&;03' -&(03'2/A*=*('
&77(/&-2*1'./'/'4*&('./'.2*'304'3/'.2&.'.2*'
A&0'6*;.*1'&41'2*',*;;'!4./'.2*'3*&'&41'A&3'
1(/A4*1' 2*'3*&'A&3'-&;;*1'&,.*('2!6'.2*'
-&(!&4'&41'.2*'!3;&41'/4'A2!-2'2!3'</15'
A&3'.2(/A4'07'&41'<0(!*1'<5' *(,!-;*3'A&>'
!-&;;*1' -&(!&' 3*1&;03'-&6*'./' &6!-03
!4' !-!;5'./'D!4>' <-&;03'A2/3*'1&0>2.*!'
;/=*1'2!6',/('2!3'&('&41'3;*A' !4*3'A2X
-&6*'!4'70(30!.'/,'2!6' *' A&3'3077/3*.'
./' 2&=*' 1!*1' !4' !-!;5'A2*(*' <0!;1!4>'
&..(!<0.*1'./' 2!6'A*(*' 32/A4'!4' 6&4K
7;&-*3'&3'&;3/'!4' &(1!4!&' >57.'&41' .&;5'
7&(.!-0;&(;5'&.' 06&*' 4' (**-*'&'406<*('
/,'&0*!*4.' A//1*4'!6&>*3'A*(*'3077/3*1'
./'<*'2!3'A/(D'!&'7&(.!-0;&('&'3.&.0*' /,'
*(&-;*3'&.' 2*<*3'A2!-2' 3*1&;03'A&3'
3&!1'./'2&=*' 6&1*'!4' ;&.!.01*'/,('.2*'
<0(!&;'/,'-&(03
&-.5!!'&5 . : ' 'A 9 '? (*
&12140'8 (' 5 ' ' : "'

B 9) ' ' (E
8 /6*' !;;&' a<&4!9

&6&3.*3' '6/43.*('!=!4>'&.' ;*03!3'
!4' ..!-&' &;3/' -&;;*1' (/-(03.*3'/(' .2*'
.(*.-2*('!3'-03./6'A&3'./';&5'2!3'>0*3.3'
07/4'2!3'<*1'&41'!,'.2*5'A*(*'./'32/(.'
,/('!.'./'(&-D'.2*6'./'1*&.2'!,' ./';/4>'./'
-0.'/,,'&3'60-2'/,'.2*!('!6<3'&3'A/0;1'
6&D*'.2*6'32/(.'*4/0>2' *' A&3'3;&!4'<5'
2*3*03
3*6/4'8 (' 5 " ' (!>!4&;;5'&'.*(6'
&77;!*1'./'1*1.5'!4'>*4*(&;'6&4!,*3.*1'!4'
!.3'&-.!=*' (*;&./!4'./'206&4'';!,* 'A!.2"

/0.' 37*-!&;' (*,*(*4-*' ./' &45' 3!4>;*' 1!=!4*' 7*(3/4&;!.5' 0.' &3' *&(;5' &3' *3!/1' .2*' " ' &77*&(' &3' 30</(1!4&.*3' /(' 3*(=&4.3' /,' .2*' 2!>2*(' >/13' *' >!=*3' .2*' 4&6*' 37*-!&;;5' ./' .2*' 37!(!.3' /,' .2*' 7&3.' &>*' /,' >/;1' A2/' &(*' &77/!4.*1' ./' A&.-2' /=*(' 6*4' &41' >0&(1' .2*6' 4' ;&.*(' .!6*3' .//' .2*' " A*(*' (*>&(1*1' & ' <*!4>3' !4.*(6*1!&.*' <*.A**4' .2*' >/13' &41' 6&4" 2!41' ,/(6!4>' &3' !.' A*(*' .2*' (*.!40*' /,' .2*' >/13' (*7(*3*4.!4>' .2*!(' 7/A*(3' !4' &-.!=!.5' &41' *4.(03.*1' A!.2' .2*' ,!;;,!;6*4.' /,' .2*!(' =&(!/03',04-.!/43' 2!3' A&3' .2*' (*;&.!/4' ./' .&D*' &4' !43.&4-*' A2!-2' .2*' &.5(3' &41' !;*4!' </(*' ./' !/45303' 0.' .2*' 7/70;&(' <*;!*,' =&(!*1' A!.2' (*>&(1' ./' 6&45' /,' .2*3*' 1*!.!*3' (/3' 1' A&3' <5' 6&45' *07(*33;5' 1*3!>4&.*1' &' 13*674' A2!;*' <5' /.2*(3' 2*' A&3' A/(32!77*1' &3' &' 7/A*(,0;' &41' !41*7*41*4.' 1*!.5' 7/.2*(' D!41' /,' " ' &(*' .2/3*' A2/' A*(*' &..&-2*1' ./' !41!=!10&;' 6*4' &..*41!4>' .2*6' ;!D*' .2*' /6&4' 1 " ' ,(/6' .2*!(' <!(.2' /4A&(13' .2(/0>2' .2*!(' A2/;*' ;!,*' 4' ;&.*(' .!6*3' .A/' " ' &' >//1' &41' <&1' A*(*' 3/6*F .!6*3' &3306*1' ,/(' *=*(5' /4*' 2!3' <*;!*,' A&3' 2/A*=*(' 4/.' 04!=*(3&;' .2*' 7(*=&;*4.' !1*&' <*!4>' .2&.' >//1' &41' <&1' &;!D*' 7(/F -**1*1' &.' 1!,,*(*4.' .!6*3',(/6' .2*' " /,'*&-2' !41!=!10&;' &41' .2&.' /4*' 7*(3/4'2&1' &7/A*(,0;' &41' <*4*=/;*4.' &4/.2*(' &' A*&D' &41' 6&;*=/;*4.' " ' 1 2 " 8>//1' " ' A&3' .2*' 4&6*' /,' .2*' >//1' 37!(!.' /,' (0(&;' 7(/37*(!.5' &41' /,' =!4*5&(13 4 *' 2*' 1&0>2.*(' /,' -(!3;03' /,' (>/3' A2/' A&3' 320.' 07' !4' &' <(&Q*4' ./A*(' <5' 2*(' ,&.2*(' !4' -/43*:0*4-*' /,' &4' /(&-;*' A2!-2' 7(*1!-.*1' .2&.' 1*&.2' A/0;1' -/6*' ./' 2!6' ,(/6' 2!3' 1&0>2.*(3' 3/4' *=*(F .2*;*33' 32*' </(*' ./' L*03' &' 3/4' *(3*03' .2*' >/1' 2&=!4>' =!3!.*1' 2*(' !4' .2*' ,/(6' /,' &' 32/A*(' /,' >/;1' 2*' A&3' .2*4' 320.' 07' A!.2' 2*(' 3/4' !4' &' -2*3.' &41' .2(/A4' !4./' .2*' 3*&' (!=*4' <5' .2*' A&=*3' /4' ./' .2*' !3;&41' /,' *(!7D/3' 32*' A&3' D!41;5' (*-*!=*1' <5' &' ,!32*(6&4' 4&6*1' !-.53' !3'</(.2*(' /;51*-.*3' .2*' D!4>' /,' .2*' !3;&41' A!32*1' ./' ,/(-*' 2*(' ./' 6&((5' 2!6' <0.' 2*(' 3/4' *(3*03' 1*;!=*(*1' 2*(' ,(/6' 2!6' &41' .//D' 2*(' <&-D' ./' (**-*# # ') B4' (/7*(;5' .2*' 4&6*' /,' .2*' !42&<!."' &4.3' /,' (>/3',(/6' .2*!(' /;1' D!4>' &4& 3' &,.*(A&(13' &77;!*1' ./' .2*' (**D3' !4' >*4*(&;' *37*-!&;;5' .2*' <*3!*>*(3' /,' (/5 &4&!1?3' 2*',!,.5' 1&0>2.*(3' /,' &4 03' ') &4&03' 2*' 3/4' /,' *;03' D!4>' /,' >57.' &41' 4-2!((2/*' &41' .A!4' <(/.2*(' /,' K >57" .03' &!>57.03' &41' 2!3',!,.5' 3/4>' 1(/=* &4&03' &41' 2!3',!,.5' 1&0>2.*(3',(/6' .2>!(' 2/6*' !4' .2*' >57.!&4' 2*64!3' .2(/0>2' 2/1*3' ./' (>/3' .2*' 2/6*' /,' 2!3' &4-*3.(*33' ;' # ';/9' *(*' 2*' ./!D' /=*(' .2*' D!4>1/6',(/6' *;&3>03' /(' *;&4/('&41'&,.*(' 2!6' .2*' -23*&43' /,' (>/3' </(*' .2*' 4&6*' /,' &!B&!' &4&03' <0!;.' .2*' &-(/7/;!3' /,' &(!33&' &41' .2*' .*67;*' /,' .2*' 5-!&4' 7/;;/'&41'.&0>2.' .2*' !42&<!.&4.3' /,' .2*' A&.*(;*33' .*((!./(5' 2/A' ./' 1!>' A*;;3' !3' 1&0>2.*(3' &;3/' -/4F ,*((*1' <*4*,!.3' /4' .2*' ;&41' <5' ,!41!4>' 37(!4>3' *37*-!&;;5' 4&56/4*' .2*' <*;/=*1' /,' /3*!1/4' A2/' ,/(' ;/=*' /,' 2*(' -(*&.*1' .2*' !4*0;2&03.!<;*' ,/04.&!4' /,' *(4&' /(' .2!3' .2*5' A*(*' A/(32!77*1' !4' (>/3' 2*' 3/43' /,' ! >57.03' &.' ;*4>.2' &77*&(*1' &41' ,/!-*1' &4&03' ./' >!=*' .2*6' 2!3' 1&0>2.*(3' !4' 6&((!&>*' .' .2*!(' ,&.2*(3' </66&41' .2*5' 3.&<<*1' .2*!(' 203<&413' &.' 4!>2.' &41' <0(!*1' .2*!(' 2*&13' !4' .2*' =&;;*5' /,' *(4&' 4*' /4;5' 57*(64*3.(&' 1!3(*>&(1!4>' 2*(' ,&.2*(3'.2(*&.3'37&(*1'2*('<*;/=*1' 54-*.!3' &41' 2*;7*1' 2!6' ./' *3-&7*' &4&03' &--/(1F !4>;5' 3*.' /4',//.' &',!>2.!4>' 6&.-2' &41' <*3F ./A*1' 2!3'(*6&!4!4>'1&0>2.*(' /4'.2*'=!-./(' ,.*(A&(13' .2/0>2' &>&!43.' 2!3' A!;;' 2*' >&=*' 54-*03' 2!3' 1&0>2.*(' &41' 2!3' D!4>F 1/6' *-/(1!4>' ./' &7/.2*('3./!5' 54-*03' -/4:0*(*1' 2!3' A!,*' &41' .2(/4*',/(' 2!63*;,' &41' .//D' =*4>*&4-*' ,/(' 2!3' </(.2*(3' <5' D!;;!4>' &4&03' &41' 2!3' 1&0>2.*!"3' 2*' &4&!1*3' 8/(' 1&0>2.*(3' /,' &4&039' &./4*1' ,/(' .2*!(' <;//15' 1**1' !4' .2*' (*>!/43' <*;/A' <5' <*!4>' -/41*64*1' ./' 7/0(' A&.*(',/(' *=*(' !4./' &' =*33*;' A!.2' 2/;*3' !4' !.3' </../6' 2!3' ,&<;*' !3' >*4*(&;;5' *07;&!4*1' <5' .2*' 257/F .2*3!3' .2&.' .2*' &4&!1*3' A*(*' 4566723' /,' .2*' 37(!4>3' &41' (!=*(3' /,' .2*' ;&41' /,' (>/3' A2!-2' &(*' ,!;;*1' ./' /=*(,;/A!4>' !4' .2*' A*.' 3*&3/4' <0.' 1(5' 07' !4' 3066*(' 2*' ./6<F 3./4*' /,' &4&03' 3.//1' !4' .2*' 6&(D*.' &.' (>/3' *' A&3' &;3/' A/(32!77*1' !4' 2/1*3' &3' .2*' ,/041*(' /,' .2*' .*67;*' /,' .2*4*' !4' !41/3' &41' &3' .2*' <0!;1*(' /,' .2*',!(3.',!,.5" /&(*1' 32!7' !4' A2!-2' 2*' ,;*1' ,(/6' >57.' 2*' 3./(5' /,' &4&03' &41' 2!3' 1&0>2.*(3' !3' .(*&.*1' <5' ! 3-25;03' !4' 2!3' 54-*03' &41' 57*(64*3.(&' 2&1"&;3/' &-/66/4' 32(!4*' !4' (>/3" .2*!(' 3/4' A&3' <&3',&.2*(' /,' -(!3;03' &41' (-*.03' 2*' 3/4',' 656/4*' &41' /3*!1/4' A&3' &07;;03',/041*(' /,' &07;!&' &41',&.2*(' /,' J;J6*1*3' 8 &0' &41' &03!6*1/4 &4-!4>' 8 (' ' &.' $ ' 3' *&(;5' &3' .2*' /6*(!-' &>*' A*' ,!41' 1&4-F !4>' &4' /<K*-.' /,' &(.!3.!-' -0;.!=&.!/4' &6/4>' .2*" (**D3' 2*' 3/43' &41' 1&0>2.*(3' /,' 7(!4-*3' &41' 4/<;*3' 1/' 4/.' 1!31&!4' ./K/!4' !4' !.' A2*.2*(' !4' (*;!>!/03',*3.!=&;3' /(' &.' 3/-!&;

>&.2*(!4>3' 2*' (**D' (' /(' &(.' 9,' 1&4-!4>' 1!,!,*(*1' 60-2',(/6'.2*' 6/1*6' f.3' &!6'A&3'./'*44/<;*' </1!;5'3.(*4>.2'&41' !-.!=!.5' A!.2' >(&-*' &41' <*&0.5' /!4*1' Y(!.2' 603!-'&41'7/*.(5'1&4-!4>' &6/4>'.2*' (**D3' *6</1!*1' .2*'=*(5'37!(!.'/,'.2*'&(.' V,' 603!-' 6&!4;5'<*-&03*'.2*' !6!.&.!=*';*'F 6*4.'7(*1/6!4&.*1'!4'!.' /('!.3'6&!4'&!6' =&3' ./' 6&D*' >*3.0(*' (*7(*3*4.' ,**;!4>' K&33!/4' &41' &-.!/4" &41' -/43*:0*4.;5' .2*' K((**D' 1&4-*' A&3' &4' *0*(-!3*' 4/.'/4;5' ,/(' '2*' ,**.'<0.',/(' .2*' &(63' 2&413' &41' .2*' =2/;*' </15' 2*' &(.'&.',!(3.'/<3*(=*1'.2*' !6!.3',' &' 4/<;*' 3!67;!-!.5'<..' A&3'7*(' *-.*1'&3'.!6*'A*4./'4'!4'6&45'1!(*-.!/43' B.'.2*' &6*'.!6*'!.'!4*=!.&<;5'.*41*1'./' /*-/6*'6/(*'&(.!,!-!&;' 3'!4'&.2;*.!-3'3/' 4'!6!.&.!=*'1&4-!4>'6*-2&4!-&;'*0*-0.!/4' A&3';&(>*;5'1*=*;/7*1' 2!3'A&3'./'&' B(*&.'*0.*4.'1!37;&5*1'!4'*02!<!.!/43' /,' 3-*4*3',(/6'.2*'65.2/;/>5'A2!-2',/(6*1' ',&=/0(!.*'*4.*(.&!46*4.'&.'<&4:0*.3' 4' .2*'/.2*(' 2&41' &'7(*K01!-*'&(/3*'&>&!43.' ;&4-!4>' 4.2*'7&(.'/,'&45'/4*'<0.'75/'* !*33!/4&;3' /(' &'>(/A4"07'7*(3/4'./'7*('* M/(6'&!1&4-*'*=*4'&.'3/-!&;'*4.*(.&!46*4.3' A&3'(*>&(1*1'&3'&4'!67(/7(!*.5' 2*'(*;!F >!/03'7*(,/(6&4-*3'*37*-!&;;5'&3'</041'07' A!.2'.2*'A/(32!7'/,' 7/;;/'&41' !/45303' K/43!3.*1'6&!4;5'!4'-2/(&;'1&4-*3'A2/3*' 6/=*6*4.'=&(!*1'&-/(1!4>'./'.2*'-2&(&-.*(' 9,'.2*'>/1'&41'/,'.2*',*3.!=&;' /6*.!6*3'!.' A&3'&'3/;*64'6&(-2'(/041'.2*'&;.&('3/6*'* '!6*3'&';!=*;!*('6*&30(*'!4'A2!-2'.2*(*'A&3' !'3.(/4>'1&32'/,'!6!.&.!/4' 2!3'A&3'* 7*'* '!&;;5'.2*'-&3*'&.'.2*',*3.!=&;3'/,' !/45303' f.'A&3',(/6'.2*3*'&3'!3'A*;;'D4/A4'.2&.' 2*' (**D'1(&6&'A&3'1*=*;/7*1'&41'&--/(1* 0>;5'.2*'1&4-*3',/(6*1'&'7&(.'/,'&;;'1(&6&3' =&(5!4>'&--/(1!4>'./'.2*'-2&(&-.*('/,'.2*' /!*-*' # ") ' 41**1'.2*(*'A&3'&4' 4,!4!.*'=&(!*.5'!4'.2*',/(63'/,'.2*' (**D' ;&4-*' /.'/4;5'2&1'&;6/3.'*=*(5'-/04.(5' ;!3.(!-.'!.3'/A4'<0.',/(*!>4'/4*3'A*(*'!4' 3/0(3*'/,'.!6*'&1/7.*1 .'603.'<*'4/.!-*1'.2&.'!4' (**D'3/-!*.5' K(/A4"07'6*4'&41' /6*4'A*(*'4/.'&;;/A*1' '/' 1&4-*' ./>*.2*('<0.'.2*(*' A*(*' 3/6*' ;&4-*3' 2!-2'A*(*'7*(,/(6*1'./>*.2*('<5' 2*' 5/0.2'/,'</.2'3*0*3' 6/4>'.2*3*' A&3'.2*' '/(-2&!4"1&4-*'7*(,/(6*1' /5'5/0.23'&41'6&!1*43'2/;1!4>'.2*!('2&413' !4'&'-2&4>!4>';!4*'.2*'5/0.23'6/=!4>'!4' A&(;!D*' 6*&30(*'.2*'>!(;3'A!.2'>(&-*'&41' 3/,.4*33' 4/.2*('A&3'.2*' 6 " '/(' (&4*' 2!3'1&4-*'A&3'7*-0;!&('./' Z;?3' !41'A&3'3&!1'./'2&=*'<**4',!(3.'7*(,/(6*1' <5' 2*3*03'&,.*('2!3'1*;!=*(&4-*',/(6'.2*' &<5(!4.2'A!.2'.2*'</53'&41'>!(;3'A2/6 2*'2&1'(*3-0*1'.3'*;&</(&.*'-/67;!-&F .!/43'A*(*'3077/3*1'./'(*7(*3*4.'.2*'6&Q*3' /,'.2*' &<5(!4.2'.'7&(.&'1&4-*3'*(* 7(&-.!3*1'&3'&"6*&43'/,'</1!;5'.(&!4!4>' <5'</53'&41'>!(;3'6/4>'.2*'6'.A/'6&5' <*'7&(.!-0;&(;5'6*4.!/4*1M'.2*' $: 7*(,/(6*1'!4'2/4/0(',/,'(.*6!3'/,'J(5) <5'.2*'(!-2*3.'&41'4/<;*3.' 7&(.&4'6&!1*43" &41'.2*'1&4-*3'G/,'</53'5/0.23'&41'6*4' &.'.2*',*3.!=&;' ,'.2*' 6: " '-/4F 3!3.!4>'!4'&4'!6!.&.!/4',/'=&(!/03'>5643&.!-' *0*(-!3*3'# '5 G*

6/4>'.2*' (**D'-/04.(5'1&4-*3'A&3' .2*' 9 " '/('1&4-*',/'.2*'A!4*"7(*33' A2!-2'!6!.&.*1'.2*'&-.!/43',' >&.2*(!4>' &41'7(*33!4>'.2'>(&7*' 2*(*'A*(*'&;3/' A&(;!D*'1&4-*3'A2!-2'A*(*'37*-!&;;5'7/70F ;&('A!.2'.2*' /(!&43'&41';!D*'/.2*(3'A*(* 7&(.;5'-/44*-.*1'A!.2'(*;!>!/03'A/(32!7' 4*'/,'.2*'6/3.'-*;*<(&.*1'/,'.2*3*'A&3'.2*' ,: ('# '>* ' (' 5

7 "' &4-!4>'4*=*('7;&5*1'30-2'&' 7&(.'!4'.2*'4&.!/4&;*';!,*'/,'.2*' /6&43'&3 !.'1!1'!4'.2&.'/,'.2*' (**D3'.'!3'.(0*'.2&.' .2*'&4-!*4.' /6&4'A/(32!7'!4-;01*1'1&4-*3' /,'.2*'7(!*3.3'# '$ '&41'.2&.'.2*';/A*(' /(1*(3'!4'.2*'-/04.(5'A*(*',/41'/,'1&4-!4>' /4',*3.!=*' /--&3!/43' 0.' (*37*-.&<;*' /6&43' (*>&(1*1'!.'&3'!4-/43!3.*4.'A!.2' .2*!('1!>4!.5' ,.*('.2*'3*-/41'04!-' &(' &3' (**D'2&<!.3'6&1*' .2*!('A&5'!4./' .&;5' !.' <*-&6*' .2*' ,&32!/4',/('5/04>'6*4'&41' >!(;3'/,'.2*'077*(' -;&33'./' .&D*' ;*33/43'!4' 1&4-!4>' &41' 3!4>!4>' 0.' 1&4-!4>' A&3' 4*=*('B/7.*1'!4' /6*'&3'&' 4*-*33&(5'&41' *,,*-.!=*'!43.(06*4.'/,'*10-&.!/4'4/('A&3' .2*(*' &45'.!6*'A2*4'70<;!-'1&4-!4>'A&3' &;/A*1'!4'3/-!*.5' *(,/(6&4-*3'<5'7(/F ,*33!/4&;'&(.!3.3'2/A*=*('8.2*';/4>*('.2* <*..*(9'A*(*'&'&=/0(!.*'*4.*(.&!46*4.' *37*-!&;;5'10(!4>'.2*'!67*(!&;'7*(!/1'A2*4' .2*'&(./,'6!6!-'1&4-!4>'&..&!4*1'&4'&3./F !32!4>'1*>(**/,'7*(,*-.!/4 &724*' '456 72'1&0>2.*(' /,' .2* 2*33&;!&4'(!=*('>/1' *4*!03'/('&--/(1!4>' ./'&4/.2*('3./(5'.2*' (-&1!&4' &1 4'A&3' <*;/ *1'</.2'<5' 7/;;/'&41'<5' *0-!7703' .2*'3/4'/,' 4<4!&03' 2*';&..*(',/;;/A*1' 2*('!4'&A/6&43'1(*33'<0.'A&3'1!3-/=*(*1' &41'D!;;*1'<5'.2*'456723'&.'.2*'!43.&4-*'/,' 2!3'(!=&;' 0(30*1'&>&!4'<5' 7/;;/'.2*' -2&3.*' 6&!1*4'A&3'&.' 2*(' /A4'*4.(*&.5' -2&4>*1'!4./'&<&5'.(**'.2*'.(**'-/43*-(&.*1' ./' 7/;;/

&724!3' '2*(/',/'.2*' !-!;!&4'32*7F 2*(13'3/4'/,' *(6*3'&41',/'&'456 72' '<*&0.!,0;'-2!;1'2*'A&3'*07/3*1'<5'2!3'6/.2*(' !4'&'>(/=*',/'<&5'.(**3'<(/0>2.'07'<5' 456723'&41' &4'&41'.&0>2.'<5' &4',/'7;&5

.2*' 32*72*(1 3',;0.*' *' 2&1' 7;!>2.*1' 2!3' G.(/.2' ./' &' 45 6 72' <0.' <(*&D!4>' 2!3' A/(1' 2*' A&3' 704!32*1' <5' 2*(' A!.2' <;!414*33'/(' %8&--/(1!4>' ./' &4/.2*(' 3./(59' .0(4*1' !4./' &' 3./4*' --/(1!4>' ./' &4/.2*(',&<;*' 72(<'' 1!.*' !4,;!-.*1' 07/4' 2!6' &' 2/7*;*33' &41',&.&;' %7&33!/4',/(' &' A/6&4' <*-&03*' 2*' 2&1' 1*3F 7!3*1'.2*';/=*'/,' &'>!(;' A2/6'32*'2&1'A!32*1' 2!6'./'A*1' *(6*3'.//D' 2!6' 07' ./'2*&=*4' "&41'-(*&.*1'&',/04.&!4'&.'.2*'37/.'A2*(*'2*' =&3'.&D*4' .' .2!3',/04.&!4'.2*' !-!;!&43' /,,*(*1'5*&(;5'3&-(!,;-*3' &724!3'A&3'(*'' !>&(1*1'&3'.2*'!4=*4./(' /,'<0-/;!-' 7/*.(5' &41'2!3',&.*' A&3'&',&=/0(!.*' 30<K*-.'A!.2' C90-/;!-'7/*.3' W' 2*/-(!.03' 15;;'!g &(1*43' B4'/,'L*03' &41'.2*' ;*!&1' ;*-.(&' .2*' ,&.2*(' /,' .2*' (*>&;' 2/03*' /,' c (/5' *';*,.' (-&1!&'2!3'6/.2*(3'2/6*' &41' A*4.' ./' .2*' !3;&41' /,' &6/.2(&-*' *(*' 2*' 3*.' 07' .2*' A/(32!7' /,' .2*' >(*&.' >/13' A2/3*' 32(!4*3' A!.2' ('2', ' 2!3',!(3.'A!,*' 2(53*' 2&1'(*-*!=*1'&3'&'>!,.' K,(/6' .2*4*'&.' 2*(' 6&((!&>*' &6/.2(&-*' 2&=!4>'<**4'=!3!.*1'<5'&'>(*&.',;/!1" &('' %1&403'3&!;*1' &A&5' A!.2' 2!3' 32(!4*3' ./' 2(5>!&'A2*(*'^!4>' *0-*(' >&=*' 2!6' 2!3' "1&0>2.*(' &.*!&' ./' A!,*' &41' ;&41' *4/0>2' %/4 /04.' 1&'./',/041'.2*'./A4'/,' &(1 4&' !3'3/4'<5' &.*!&'A&3' (!-2.2<4;03'A2/6' /6*(' 1*3-(!<*3'&3'.2*' A*&;.2!*3.'/,' 6/(F .&;3' &41' .2*' 7/33*33/(' /,' 2/(3*3' /,' .2*' 6/<!*3.'<(**1'&41'6/3.'37;*41!1'.(&!4!4>' 2*'3/4'/,' (!-2.2/4!03'A&3' (/3',&.2*(' /,' ;?3' 33&(&-03'&41' 2456*1*3' (/6' ;/3' .2*' ,/041*(' /,' ;;/4' /(' (/5' A&3'1*3'' %-*41*1' &/6*1/4',&.2*(' /,' (!&6' (/6' 33&(&-03'37(&4>' &753',&.2*(' /,' 4-2!3*3' %&41' >(&41,&.2*(' /,' 4*&3' 4/.2*('3./(5' "6&1*' &(1&403'.2*' 4&.!=*' 7(!4-*' A2' A*;F -/6*1' *0-*(' /4' 2!3' &((!=&;',(/6' (*.*' 83**')(&(;-03'8 (' 5 ' '>/;1' *(3!&4' "-/!4'<*&(!4>.2*'3.&67'/,'&'-(/A4*1'&(-2*('' "-0((*4.'!4' (**-*' 1/A4'./'.2*' &-*1/4!&4' 7*(!/1' .'A&3'*:B0&;'!4'=&;0*'./'.2*' ..!-' %>/;1' ' &--/(1!4>'./' .2*' 7(*3*4.' =&;0*' /,' >/;1'@C' 32!;;!4>3' fK **' " ' ,!>' g 2(3'/,' 2(5>!&' 4' /6*(' .2*' 7(!*3.' "/,' *72&*3.03'!4' (/5' 3077/3*1'./' 2&=*' <**4' .2*' &0.2/(' /,' &' 7(* /6*(!-' ;!&1' .'!3'1/0<.,0;'A2*.2*(' .2*(*' *=*(' A&3'&45' " (**D' A/(D'<*&(!4>'.2!3'.!.;*' <0.' &' &.!4' 7!*-*' /,' .2*' V.2' -*4.0(5' #5 ' , (:13' 5' 9- ' + ' /" ' <*&(!4>'&'3077/3*1'1*1!-&.!/4'<5' /(4*;!03' *7/3'./' &;;03.'7(/,*33*3'./'<*' &'.(&43;&F .!/4',/'/4*' 2!3'&<30(1'7(/10-.!/4'&41' %.2*' A/(D'/,' !-.53'A&3'.2*' -2!*,'3/0(-* ,/;;/A*1' <5' .2*' 6*1!&*=&;' 7/*.3' !4' .2*!(' 3./(!*3'/,'.2*' (84&4'A&(' # ' ! ?&' !&' /6&4' >/11*33' 7(/<&<;5' !1*4.!-&;' A!.2' --&' &(*4.!&' .2*' &4-!*4.' /6&4' >/11*33',/,'.2*' -/04.(5' *('A/(F 32!7'A&3'7(/=!1*1',/('<5'.2*'7(!*3.;5'HI 2 S ',/,'.2*' , *&.2'8 (' + " ' 4' .2*' /6*(!-' 7/*63' *&.2'!3'-&;;*1'.2*' .A!4'<(/.2*(' /,' ;**7' 4' *3!/1'2*'!3'<(/(4'/,' !>2.'A!.2F /0.' &',&.2*(' A!.2' '$ ' 8.2*' >/11*33' /,' 6/(.&;'1*3.!459' ' 8.2*',&.&;'3.(/D*' /,' 1*&.29' : " ' 83;**7' &41' .2*' (*&63' *3!/1'(*7(*3*4.3' *&.2' .2*' 2&(1"2*&(.*1' /4*' 2&.*1'<5'.2*'!6 6/(.&;'>/13' &3' 1A*;;F !4>'A!.2'2!3'<(/.2*(' ;**7'!4'.2*' 1&(D4*33' /,' .2*' *3.' A2!.2*(' .2*' 304' 4*=*(' 7*4*F .(&.*3' *!.2*(' &.' 2!3' (!3!4>' /(' 2!3' 3*..!4>' 4' .2*' -2*3.' /,' 573 ;03' &.' ;56 7!&' !3' &' (*7(*3*4.&.!/4' /,' !>2.' 2/;1!4>' !4' *&-2' 2&41' &' 3;**7!4>'<'/5 " .2*' /4*' !4' .2*' (!>2.' 2&41' <*!4>'A2!.*' &41' 35 6</;!Q!4>' ;**7" .2*' /.2*(' !4' .2*' ;*,.' 2&41' <;&-D' &41' 35 6</;!Q!4>' *&.2' 0(!7!1*3' !4.(/10-*3' *&.2'/4' .2*' 3.&>*' !4' 2!3' ' *' 2&3' &' <;&-D' >&(6*4.' &41' <;&-D' A!4>3' &41' &' D4!,*' ./' -0.' /,,'&;'/-D' /,' 2&!(' &3' &4' /,,*(F !4>'./' .2*' >/13' <*;/A' 4' A/(D3' /,' &(' 2*' &77*&(3' &3' &' <*&0.!,0;' </5' /(' 5/0.2' 3/6*F .!6*3' A!.2' /6*.!6*3' A!.2/0.' A!4>3' &41' /,,*4' A!.2'2!3'<(/.2*(' ;**7' *' !3'030&;;5' !4'3;06<*('&41'2/;13'&./(-2'*!.2*(';/A*(*1' /(' (*=*(3*1'&41'*0.!4>0!32*1 ?-*6=' 8 &.!49' ' 1 ' /,' .*4' /,,!-*(3' /(' -/66!33!/4*(3' 0-2' A*(*' .2*' -/66!33!/4*(3' 4&6*1',/(' 6&D!4>' &' -/6F 7(*2*43!=*' -/1*' /,';&A3'!4' CV$' 5 R ' ; 1 ' " ' 2*' 5 !' ' A " ' A*(*' &' 3.&41!4>' R 1 ' /,' 7(!*3.3' &77/!4.*1' ./' (*&1' &41' *07/041' .2*' !<5;;!4*' </!23' 2*' 5 R ' ; ' 3 " ' A*(*' &;3/' &' 3.&41!4>' 1 ' /,' " ' &77/!4.*1' ,/(' -*(.&!4' .(!&;3' /6 6!33!/43' /,' .*4' # ' 1 2' " ' &41' " ' " " ' A*(*' ,(:0*4.;5' .2/0>2' 4/.' &;A&53'&77/!4.*1',/('&33!>4&.!/43'/,'70<;!-' ;&41'&41'.2*' ,/041&.!/4' /,' -/;/4!*3 -.!6&' ' .!.2*' 2!3' 4&6*' A&3' &7F 7;!*1'<5'.2*' /6&43'./'.2*' .(!<0.*' !4'D!41' A2!-2' !-!;5'&41'&.'/4*' .!6*' 3!&' !4/(' 2&1'./' 7&5' /0.' /,' .2*' 5*&(;5' 7(/10-*' /,' A2*&.'A!4*'/!;'&41';*>06*3'!43.*&1'/,' .2*' ' 030&;' !4' /.2*(' 7(/=!4-*3' ./' A&3' &' <0(1*4' /4' .2*' ;&41' -&;;*1'&,.*(' !.' 1 ' " ' &41' A&3' *0&-.*1' ,(/6' .2*' 7*!"3743' /--075!4>'&.' .2*' .!6*\' =*(5' 5*&(' .2*' 406<*(' /,' -0;.!=&./(3' /,' &-(*3' 041*(' -0;.!=&.!/4' &41" .2*' 7(/10-*' /,' .2*

3&4-.0&(5 ,(/6 A2!-2 &(/3* -/;1 =&7/0(3 A2!-2 2&1 .2* 7/A*(/,!410-!4> *-3.&35 =*(.2* -;*,. 3.//1 &;/,.5 >!;1*1 .(!7/1 /, A//1 4 .2!3 A&3 &-!(-0;&(3;&< 07/4 A2!-2 .2* 3*&./,.2* 7(/72*.*33 A&3 7;&-*1 2* 7(/72*.*33 -&;;*1 5.2!& A&3 & 6&!1*4 /,2/4/0(&<;* <!(.2 !4 *&(;!*(.!6*3 & 5/04> >!(;<0. !4 &;&.*(&>* & A/6&4 /,/=*(,!,.5 3.!;; A*&(!4> &>!(;3 1(*33 !4 6*6/(5/,.2* *&(;!*(-03 ./6 4 .2* 7(/37*(/03 .!6*3/,.2* /(&-;* .A 5.2!&3 &-.*1 &;.*(4&.*;5 A!.2 &.2!(1 ./ &33!3. .2*6 4 .2* *&(;!*3. .!6*3 .2* 5.2!& &3-*41*1 .2* .(!7/1 /4;5 /4-* & 5*&(/4 .2* <!(.21&5 /,7/;/ .2*3*=*4.2 /,.2* *;72!&4 37(!4> 6/4.2 53!13 0. !4;&.*(5*&(3 32* 7(/72*3!*1 *=*(5 1&5 !, .2* 1&5 !.3*;, &41 .2* 3&-(!,!-*3 A*(* 4/. 04,&=/0(&<;* 2*3* 3&-(!,!-*3 A*(* /,,*(*1 <K .2* 3077;!-&4.3 &1/(4*1 A!.2 ;&0(*; -(/A43 &41 ,!;;*.3 /, A//; &=!4> 7(*F 7&(*1 2*(3*;, <5 A&32!4> &41 70(!,!-&.!/4 .2* 5.2!& *4.*(*1 .2* 3&4-.0&(5 A!.2 >/;1 /(4&6*4.3 !4 2*(2&!(&41 ,;/A!4> (/<*3 07/4 2*(32* 1(&4D /,.2* A&.*(/, .2* ,/04.&!4 &33/.;3 A2!-2 ,;/A*1 !4./ .2* 32(!4* .&3.*1 .2* ,(0!./, .2* /;1 <&5 .(** 3.&41!4> !4 .2* -2&6<*(&41 .//D 2*(3*&. /* /4* A&3 7(*3*4.<0. & 7(!*3. -&;;*1 .2* , (A2/ *07;&!4*1 .2* A/(13 32* 0..*(*1 !4 2*(*-3.&35 &41 70. .2*6 !4./ 6*.(!-&;,/(6 >*4*(&;;5 2*0&6*.*(3 4 ;&.*(.!6*3 .2* =/.&(!*3 A*(* -/4.*4.*1 A!.2 &43A*(3 !4 7(/3* 2* (*37/43*3 A*(* /,.*4 /<3-0(* &41 *4!>6&.!-&;* &41 -/0-2*1 !4 &6<!>0/03 &41 6*.&72/(!-&; *07(*33!/43 A2!-2 .2*63*;=*3 4**1*1 *0F 7;&4&.!/4 2* /(1*(!4 A2!-2 .2* &Wa7;!" -&4.3 &77(/&-2*1 .2*/(&-;* A&3 1*.*(6!4*1 <5 ;/. <0. -*(.&!4 -!.!*3 &3 7&(.& 2&1 .2* (!>2./,7(!/(!.5

2* (*70.&.!/4 /,.2* /(&-;* 3.//1 *(5 2!>2.2(/0>2/0. (**-* 04.!;.2* .!6* /,.2* *(3!&4 A&(3 *37*-!&;;5 &6/4>.2* /(!&4 .(!<*3 &41 &6/4> .2*6 7(*"*6!4*4.;5 .2* 7&(.&43 A2/ 2&1 3./1 ,(/6 /, /;1 !4 !4.!6&.* (*;&.!/4 A!.2 !. 4 &;;!67/(.&4 /--&3!/43 &3 .2* 3*41!4> /0. ,-/;/4!*3 .2* ,(&6!4> /, !4.*(4&; ;*>!3;&.!/4 /((*;!F >!/03 /(1!4&4-*3 .2* >/1 /, *;72!A&3 -/430;.*1 &41 .2&.4/. /4;5 <5 (**D3 <0. <5 ,/(*!>4*(3 *37*-!&;;5 .2* 7/7;* /, 3!& &41 .&;5 ,.*(.2* *(3!&4 A&(3 .2* !4,;0*4-* /, .,!* /(&-;* 1*-;!4*1 7&(.;5 !4 -/43*:0*4-* /, .2* >(/A.2 /, 04<*;!*, 7&(.;5 ,(/6 .2* 6!3.(03 *0-!.*1 <5 .2* 7&(.!&;!.5 &41 =*4&;!.5 /, .2* 7(!*3.2//1 0. !. 4*=*(,*;;-/67;*.*;5 !4./ 1!3-(*1!. &41 ,(/6 .!6* ./ .!6* !.3 7/3!.!/4 (/3*

&>&!4 4 .2* ,!(3.2&;, /, .2* @41 -*4.0(5 !.2&1 & (*=!=&; .2* (*30;. /, .2* 4*A;5 &A&D*4*1 !4.*(*3. !4 .2* /;1 (*;!F >!/4 . A&3 &</;!32*1 &. .2* *41 /, .2* C.2 -*4.0(5 <5 2*/173!03 .2* (*&. 2* /;1*3. 3./4* .*67;* /, 7/;;/ A&3 &..(!<0.*1 ./ .2* 65.2!-&; &(-2!.*-.3 (/72/4!03 &41 >&6*1*3 . A&3 <0(4. 1/A4 !4 VCR - A2*4 .2* ;-63*/4!1&* &. .2&. .!6* !4 *0!;* ,(/6 .2*43 041*(./!D ./ (*<0!;1 !. ,/(2* 306 /, NN .&;*4.3 7&(.;5 .&D*4 ,(/6 .2* .(*&30(* /, .2* .*67;* &41 7&(.;5 -/4.(!<0.*1 <5 &;; -/04.(!*3 !42&<!.*1 <5 (**D3 &41 3.&41F !4> !4 -/44*0!/4 A!.2 .2* /(&-;* 2*5 70. .2* (*3./(&.!/4 !4./ .2* 2&413 /, .2* /(!4.2!&4&(-2!.*-. 7!4.2&(03 &41 -&((!*1 !./0. !4 & 6/(* 37;*41!1 3.5;* .2&4 &3 /(!>!4&;;5 &>(**1 07/4 <0!;1!4> .2* ,(/4./, &(!&4 6&(<;* !43.*&1 /, ;!6*3./4* 2* >/(073 /,3-0;7.0(* !4 .2* 7*1!6*4.3 (*7(*3*4.*1 /4 .2* *&3.*(4 3!1* 7/;;/ A!.2 (.*6!3 *./ &41 .2* 03*3 /4 .2* A*3.*(4 3!1* !/4 303 A!.2 .2* 25!&1*3 &41 .2* 3*..!4> 3 4 ,/(!/45303 &3 A/(32!77*1 2*(* !4 A!4.*(10(!4> .2* !6&>!4*1 &<3*4-* /, 7/;;/ 2*3* A*(* &;;.2* A/(D /, (&0!&3 &41 41(/3.2*4*3 &41 A*(* ,!4!32*1 &</0. C N (2* .*67;* A&3 /4 &--/04./, !.3 =&3.*0.*4. & 2573*.2(&;* <0!;1!4>" .2&.!3 .2*(* A&3 4/ (//, /=*(.2* 37&-* /--07!*1 <5 .2* .*67;* 7(/7*(2* &(-2!.*-.0(* /, .2* *0.*(!/(A&3 /(!- /, .2* !4.*(!/(/4!- &3 6&5 .!;; <* /<3*(=*1 !4 .2* 30(=!=!4> (0!43 4 .2* A&;;3 /, .2* *4.(&4-*"2&;;A*(*32/(. .*0.3 A(!..*4 !4 >/;1 &..(!<0.*1 ./ .2* *=*4 !3* *4 4* /, .2*3* A&3 .2* -*;*<(&.*1 H ^ 6/A 253*;, I 4 .2* .*67;* 7(/7*(3./1 .2* >/;1*4 3.&.0* /, 7/;;/ &41 !4 ,(/4./, !. .2* 3&-(!,!-!&;2*&(.2 A!.2 .2* *.*(4&; ,!(* *&(.2!3 A&3 &>;/<* /, 6&(<;* -/=*(*1 A!.2 ,!;;*.B .2* ((-*4.(* /, .2* *&(.2 4 *&(;!*(.!6*3 .A/ *&>;*3 3./1 &. !.3 3!1* (*7(*3*4.!4> .2* .A/ *&>;*3 A2!-2 ,&<;* 3&!1 2&1 <**4 3*4./0 <5 L*03 &. .2* 3&6* 6/6*4. ,(/6 .2* *&3.*(4 &41 A*3.*(4 *413 /, .2* A/(;1 2*3* *&>;*3 A*(* -&(!*1*/,, !4 .2* 2/-!&4 A&(&41 .2*!(7;&-* ,!;;*1 <5 .A/ *&>;*3 !4 6/3&!- /4 .2* ,;//(*2!41 .2!3 37&-* A&3 .2* !44*(32(!4* ;5!4> ;/A*(!4 .2* ,/(6 /, &-&=*(4 /=*(.2* -;*,.!4 .2* *&(.2 !.2!4 .2* 37&-!/03 7(*-!4-.3 & " [3.//1 &>(*&. 406<*(/, -2&7*;3 3.&.0*3 /.!=* /,,*(!4>3 &4,! .(*&30(*"2/03*3 /, .2* =&(!/03 (**D 3.&.*3 !4 A2!-2 .2*5 1*F 7/3!.*1 .2*!(>!,.3 ./ .2* 3&4-.0&(5 *3F 7*-!&;;5 .2* .!.2*3 /, .2* <//.5 .&D*4 !4

A&(' *(*' .//' A&3' .2*' -/04-!;' -2&6<*('
/,'.2*' *;72!&43' *,/(*' .2*' *4.(&4-*' ./'
.2*' .*67;*' A&3' .2*' >(*&.' &;.&(' ,/(' <0(4."'
/,,*(!4>3' &41' .2*' >/;1*4' .(!7/1' 1*1!-&.*1'
<5' .2*' (**D3' &,.*(' .2*' <&..;*' /,' ;&.&*&' /4'
&' 7*1*3.&;' /,' <(&33' (*7(*3*4.!4>' &' 34&D*'
!4' .2(**' -/!;3' f 2*' >(*&.*(' 7&(.' /,' .2!3'
7*1*3.&;' 4/A' 3.&413' !4' .2*' !77/1(/6*' /('
.6*!1&4' &.' /43.&4.!4/7;* g' *3!1*3' .2*'
.(*&30(*3' &--060;&.*1' !4' .2*' -/0(3*' /,' .!6*'
.2*' .*67;*' 2&1' -/43!1*(&<;*' 7(/7*(.5' !4'
;&41' A!.2' &' 7/70;&.!/4' -/43!3.!4>' 6&!4;5'
/,' 3;&=*3' # ' </041' ./' 7&5' -/4F
.(!<0.!/43' &41' ./' (*41*(' 3*(=!-*' ./' .2*'
3&4-.0&(5' 2*' 6&4&>*6*4.' /,' .2*' 7(/F
7*(.5' A&3' !4' .2*' 2&413' /,' 7(!*3.3' -2/3*4'
,(/6' .2*' 4/<;*' *;72!&4' ,&6!;!*3' &.' .2*!('
2*&1' .2*' ,!=*' ' ' -/43*-(&.*1' /4*3'
!4-*' .2*' ,!(3.' 37/;!&.!/4' /,' .2*' .*67;*' <5'
.2*' 2/-!&43' !4' VV' ' !.' A&3' 3*=*(&;'
.!6*3' 7;041*(*1' /4' &' >(&41' 3-&;*' *(/'
,/(' !43.&4-*' !3' 3&!1' ./' 2&=*' -&((!*1' /,,' VNN'
<(/4Q*' 3.&.0*3' *.' 3/6*' NNN' 3.&.0*3'
A*(*' ./' <*' 3**4' .2*(*' !4' .2*' .!6*' /,' .2&'
;1(' ;!45' W ' &4' &(.!-;*' /4' .2*' *;72!-'
.*67;*' <5' (/,*33/(' !11;*./4' . " ' '
" ' ' !O' @R@" @@ g
*6&(-213' V--' &
6.*('8!4' (**D' 65.2/;/>59' &0>2.*('
/,' (1403' &41' 2*&' *(' 4&6*' 3!>4!,!*3

' ' ' '
' 8#9
8 *;!*,',/041'&.' ;*03!3' $RVT 9

/.2*(' &(.2' .2*' 6*&4!4>' <*!4>' .2&.' 32*'
A&3' >/11*33' /,' &>(!-0;.0(*' &41' .2*' -!=!;!F
Q&.!/4' <&3*1' 07/4' !.' *(' -2!;1(*4' &(*' <5'
' '

;&3;/4' &' 3/4' ;,;.03' .2*' >/1' /,' (!-2*3' &41'
<5' 2*(' <(/.2*(' L*03' &' 1&0>2.*(' *(3?"'
7214*' /041' *6*.*(' &41' .2!3' 1&0>2.*('
-*4.(*' 2*(' A/(32!7' &41' .2*' ,&<;*3' (*37*-.F
!4>' 2*(' &1*3' -&((!*3' /,,' *(3*72/4*'
&41' *6*.*(' A&41*(3' 4!4*' 1&53' /=*(' .2*

^ ' '
8 (!.!32' 03*06 9

*&(.2' 3**D!4>' 2*(' .!;;' /4' .2*' .*4.<' 1&5' 30*'
;*&(43' .2*' .(0.2' ,(/6' .2*' &;;"3**!4>' 304'
2*' !3' A(&.2' A!.2' L*03' ,/(' 7*(6!..!4>' .2*'
&-.' /,' =!/;*4-*' &41' 32*' =!3!.3' ;56703' &41'
A&41*(3' &</0.' &6/4>' 6*4' !4' .2*' ,/(6' /,'
&4' /;1' A/6&4' 041*(' .2*' 4&6*' /,' */' /('
.2*' **D*(' .!;;' &.' ;*4>.2' &.' ;*03!3' !4'
..!-&' 32*' !3' D!41;5' (*-*!=*1' &.' .2*' 2/03*'
/,' D!4>' *; 03' &41' ,!413' -/6,/(.' !4' .*41('
!4>' 2!3' 4*A;5' </6' 3/4' *6?72V?4' 0(F
7(!3*1' <5' 2!3' 6/.2*(' !4' .2*' &-.' /,' .(K14>'
./' 6&D*' .2*' -2!;1' !66/(.&;' <5' 70..!4>' !.'
!4' .2*' ,!(*' 32*' (*=*&;3' 2*(' 1*!.5' &41' -&03*3'
&' .*67;*' ./' <*' <0!;.' ./' 2*(' !4' A2!-2' 32*'
>!=*3' 2*(3*;,' 07' ./' 2*(' >(!*,' 4' 2*(' A(&.2'
32*' 6&D*3' .2*' *&(.2' <&((*4' 3/' .2&.' 6&4F
D!41' &(*' .2(*&.*4*1' A!.2' 1*3.(0-.!/4' <5'
,&6!4*' &3' 32*' 1/*3' 4/.' &;;/A' .2*' ,(0!.' /,'
.2*' *&(.2' ./' 37(!4>' 07' &>&!4' 04.!;' 2*('
1&0>2.*(' !3' &;;/A*1' ./' 37*41' .A/".2!(13' /,'
.2*' 5*&(' A!.2' 2*(' 4' 2*(' (*-.06' ./'
;56703' 32*' ;*&=*3' .2*' >!,.' /,' -/6' /,

&>(!-0;.0(*'&41'/,'2*('2/;5'653.*(!*3'A!.2'2*('2/3.'&3'&'./D*4'/,'>(&.*,0;(*-/;;*-.!/4'2*'3*413'(!7.;603'.2*';*03!4!&4'(/041'.2*'A/(;1'/4'2*('-2&(!/.'1(&A4'<5'3*(F7*4.3'./'1!!,03*'.2*'D4/A;*1>*'/,'&>(!-0;F.0(*'&41'/.2*('<;*33!4>3'&--/67&45!4>'!.'.2*'3*..;*6*4.'/,',!0*1'7;&-*3'/,'&</1*'-!=!;'/(1*('&41'A*1;/-D'203'*6*.*('A&3'A/(32!77*1'&3'.2*'>/11*33'/,'&>(!-0;F.0(*'&41',/041(*33'/,';&A'/(1*('&41'*3F7*-!&;;5'/,'6&((!&>*'!4'&;'7;&-*3'A2*(*'(**D3'1A*;.'2*('1&0>2.*('<*!4>'030&;;5'&33/-!&.*1'A!.2'2*('#'&'2*'6/3.'&4-!*4.'3*&.'/,'2*('A/(32!7'A&3'.2*43'&41';*03!3'A2*(*'.2*'2&(!&4

8 O(&;'7&!4.!4>',(/6'/67!!9

7;&!4'A&3'3/;*64;5'7;/0>2*1'*=*(5'5*&('!4'6*6/(5'/,'.2*',!(3.'3/A!4>'/,'A2*&.'2*'A&3'&;3/'60-2'A/(32!77*1'!4'!-!;5'A2!-2',(/6'!.3',*(.!;!.5'A&3'&--/04.*1'/4'*/,'2*('&=/0(!.*'7;&-*3'/,'&</1*'83**'')3'.2*'>/11*33'/,',*(.!;!.5'*6*.*('A&3'!4'6&45'(*>!/43'&33/-!&.*1'!!.2'3*!1/4'.2*'>/1'/,',*(.!;!Q!4>'&.*('2!3'A&3'7&(.!-0;&(;5'.2*'-&3*'!4'(-&1!&'A2*(*'3*!1/4'A&3'(*>&(1*1'&3'.2*',&.2*('/,'*(3*72/4*'2*'A&3'&;3/'K/!4*1'A!.2'!/45303'.2*'>/1'/,'A!4*'&41'&3'6/.2*('/,'*(3*72/4*'&41'>/11*33'/,'.2*'*&(.2'./A2!-2'4/'/4;5'.2*'3**1'<0.'.2*'1*&1'&(*'-/64,!..*1'32*'!3'-/44*-.*1'A!.2'.2*';/A*('A/(;1'041*('.2*'4&6*'/,'2.2 4&'4;&.*('.!6*3'32*'A&3'/,..*4'-/4,03*1'A!.2'&!&'41'2*&'('5<B;*'*3!1*3',(0!.'&41'2/4*5-/6<3'.2*'-/A'&41'.2*'3/A'A*(*'/,,*(*1'./'2*('</.2'&3'*6<;*63'/,'7(/F10-.!=!.5'*('&..(!<0.*3'&(*'7/77!*3'&41'*&(3'/,'-/(4'8&;3/'&'3566</;'/,',(0!.,0;4*339'&'<&3D*.'/,',(0!.'&41'&';!..;*'7!>'.2*!'*6<;*63'2&1'&'653.!-'3!>4!,!-&4-*'&3'.2*'./(-2'&41'.2*'3*(7*4.'&3';!=!4>'!4'.2*'*&(.2'&41'&3'356</;!Q!4>'&'(*4*A&;'/,';!,*'<5'32*11!4>'!.3'3D!4'2*'/6&43'!1*4.!-';!*1'2*('A!.2'.2*!('/A4'(*36*.(!03'2J;*(*03'8/,'2&;(044'/4'.2*'-/&3.'/,'.2*439'*'A&3'</(4'&</0.'CV'A&3'&707!;'/,'2*/72(&3.03'&41'&4'&12*(*4.'/,'.2*'*(!7&.*.!-'3-2//;'*'A&3'1!3.!4>0!32*1'&3'&'3.&.*36&4'/(&./('&41'3-2/;&('!3'(*70.&.!/4'!410-.'&3"3&41*('./'70.'2!6'&.'.2*'2*&1'/,'.2*'.2*4!&4'3.&.*'!4'$U'/('.*4'5*&(3'2*'&16!4!3.*(*1'!.3'&,,&!(3'&41'3/'.2/(/0B5'A/4'.2*'&,,*-.!/4'/,'2!3',*;;/A"-!.!Q*43'.2&.'.2*5'*(*-.*1'406*(/03'3.&.0*3'./'2!65'&'6&45'&3'?N'&--/(1!4>'./'.2*'&//04.'4'.2*'&77(/&-2'/,'*6*.(!03'/;!/(-*.*3'!4'NU'2*'A&3'1*7/3*1'&41'.2(/0>2'.2*',,/(.3'/,'2!3'/77/4*4.3'-/41*64*1'./1*&.2'<5'.2*',!-D;*'7/70;&-*'4'.2!3'2*',;*1'./'>57.'./'.2*'-/0(.'/,'./;*65'.2*'!(3.'A2/'(*-*!=*1'2!6'D!41;5'&41'&=&!;*1'2!6F3*;,'/,'2!3'-/043*;'203'*6*.(!03'!3'-(*1!.*1'A!.2'2&=!4>'30>>*3.*1'.2*',/041&F.!/4'/,'.2*'-*;*<(&.*1';!<0&41(!&4';!<(&(5'0./;*65'A!.21(*A'2!3',&=/0('(76'2!6'&41'<&4!32*1'2!6'./'77*('>57.'A2*(*2*'1!*1'!4'@R'-',(/6'.2*'<!.*'/,'&'=*4/6/03'34&D*'*'A3'=*(5'&-.!=*'&3'&'A(!.*('&41'2!3'3.&5'!4'>57.'>&=*'2!6'7;*4.5'/,';*!30(*'./'!410;>*'2!3'.&3.*'<0./4;5'&',*A',(&>6*4.3'/,'2!3'A/(D3'2&=*'30(=!=*1'4'*33&5'"'7(9-R"',/(6*(;5'&..(!<0.*1'./'2!6'A&3'!4'(*&;!.5',(/6'.2*'2&41'/,'&'6*.(!03'A2/';!=*1'!4'.2*'$3.'-*4.0(5'3'&4'/(&./('6*.(!03'!3'3&!1'./'2&=*'<**4'&..(&-.!=*'(&.2*('.2&4'7/A*(,0;'*'A&3'3077/3*1'./'2&=*'<**4'.2*',!(3.'37*&D*('A2/'>&=*'(2*./(!-&;'*07(*33!/4'&4'&(.!,!-!&;'-2&(&-.*('&41'&;3/'.2*',!(3.'A2/'!4.(/10-*1'!4./'.2*'(2*./(!-&;'3-2//;3'.2*'2&<!.'/,'7(&-.!3!4>'37*&D!4>'07/4',!-.!.!/03'.2*63'K0(!3.!-'/('7/;!.!-&;*6;4.!.;1'-7;.!3'81!6!40.!/4'/,'-!=!;'(!>2.3'&41';*>&;'-&7&-!.59'2!3'A&3'.2*'.*(6'<5'A2!-2'.2*'/6&43'1*4/.*1'1*F>(&1&.!/4'!4./'&4'!4,*(!/('-!=!;'-/41!.!/4'.2(/0>2'.2*';/33'/,'.2*'(!>2.3'/,',(**1/6'-!.!Q*432!7'/(',&6!;5'2*'*0.(*6*',/(6'/,'!.'"'-'A&3'*4.&!;*1

;95 .2* ;/33 /, ,(**1/6 A2!-2 !4=/;=*1 .2*
;/33 /, &;; /.2*((!>2.3 2!3 A/0;1 /--0(
!, & /6&4 -!.!0*4 A*(* .&D*4 7(!3/4*(!4
A&(/(>! *4 07 ./ .2* *4*65 ,/(2&=!4>
=!/;&.*1 .2* 3&4-.!.5 /, &4 &6<&33&1/(/(
-/4-;01!4> & .(*&.5 4/. &77(/=*1 /, <5
.2* 7*/7;* (&>&!4 !, 2* A&3 3/;1 !4./
3;&=*(5 A2*.2*(<5 .2* .&.* ,/((*,03!4>
6!;!.&(5 3*(=!-* /(1*-;!4!4> ./ 3.&.* .2*
G&6/04. /, 2!3 7(/7*(.5 &. .2* -*4303 /(
<5 2!3 -(*1!./(3 ,/(1*<. , & 7(!3/4*(/,
A&((*.0(4*1 2/6* /(!, .2* *4*65 (*,03*1
./ &--*7. 2!6 A2*4 >!=*4 07 ./ .2*6 2!3
,/(6*(-!=!;(!>2.3 A*(*(*3./(*1 2* !4.*(F
6*1!&.* 3.&>* " /(
" -/43!3.*1 !4 ;/33 /, -!=!;((!>2.3 -/4
%3*:0*4. /4 <*-/6!4> -!.!0*4 /, &4/.2*(
%3.&.* /(/4 & 1*-(** /, *0!;* -/4,!(6*1 <5
.2* 7*/7;* /(8!4 !67*(!&; .!6*39 /4 1*7/(F
.&.!/4 *3./(&.!/4 /, .2* -!=!;3.&.03 A&3
7/33!<;* !, .2* ,/(*!>4 -!.!0*432!7 A*(*
>!=*4 07 /(!, .2* 1*-(** /, *0!;* A*(*
% &4-*;;*1 2* ;/A*3. >(&1* & "
2 ! " A&3 ;/33 /, 2!.2*(./
*0!3.!4> ,&6!;5 (!>2.3 <5 *6&4-!7&.!/4
8A2!-2 !4=/;=*1 ;*&=!4> .2* ,&6!;59 &1/7
G%!/4 /(8!4 .2* -&3* /, &>!(;9 <5 6&((!&>*
6!4(> &5 ! A/(D(3 ,/(.2*
7*/7;*9 >*4*(&; .*(6 &6/4> .2* (**D3
,/(.(&1*36*4 &6/4> A2/6 .2*5 !4-;01*1
&(.!3.3 &41 7253!-!&43 4 /;1 .!6*3 .2*5
,/(6*1 &. .2*43 .2* .2!(1/(1*(.2* /.2*(
.A/ <*!4> .2* 9 &41 6 < !
& .2*3* 4&6*39 4 3/6* 3.&.*3 1
A&3 .2* 4&6* /, .2* 70<;!- /,,!-!&;3 !4
.2* -2&*&4 *&>0* ,/(!43.&4-* .2* .*4
1 A*(* &6/B .2* 2!>2*3. /,,!-*(3
/, .2* -/4,*1*(&-5
61-(D.!& &5 3/=(*!>4.5 /,
.2* 7*/7;*9 2* (**D .*(6 ,/(.2* ,/(6
/, -/43.!.0.!/4 !4 A2!-2 &;; -!.!0*43 2&1
.2* (!>2. /, .&D!4> 7&(. !4 .2* >/=*(46*4.
G 2!3 (!>2. A&3 4/. &;A&53 &<3/;0.*;5 *:0&;
/6*.!6*3 -;&33*3 A*(* ,/(6*1 /4 &7(/
6(.5 :0&;!,!-&.!/4 &41 -!=!; (!>2.3 -/4F
,*((*1 &--/(1!4>;5 83** & (<0. 4/
/;&33 !4 .2!3 -&3* A&3 &<3/;0.*;5 *0-;01*1
,/(6 & 32&(* !4 .2* >/=*(46*4. &41 !. A&3
7/33!<;* ./ (!3* ,(/6 /7* -;&33 ./ &4/.2*(
/6*.!6*3 7(/=!3!/4 A&3 6&1* <5 ;&A ./
7(*=*4. &45 7*(3/4 .&D!4> 7&(. !4 .2* &1F
6!4!3.(&.!/4 .30-2 &3 2&1 7(/=*1 .2*!(
A/(.2 &41 -&7&-!.5 4 .2* &<3*4-* /,
0-2 ;!6!.&.!/43 .2* 1*6/-(&-5 &3 ;&./
!4 2!3 *7..J;!-&41 (!3./.;* !4 2!3 ,
/<3*(=*1 3//4 1*>*4*(&.*1 !4./ & 6/<"
>/=*(46*4.& (/(1*=*;/7*1 !4./
4 1*37/.!36
61(!.43 &5 G G (**D
</(4 &. <1*(& !4 2(&-* &</0.
- !3 ,&.2*(A2/ 2&1 *4.*(.&!4*1
D!4>]*(0*3 ,/(3/6* .!6* 10(!4> 2!3
*07*1!.!/4 &>&!43. (**-* ;*,. 2!6 & =*(5"
-/43!1*(&<;* 7(/7*(.5 A2!-2 2* 37*4. !4
6&D!4> ;/4> K/0(4*53 !4./ >57. &41 3!&
4 2!3 (*.0(4 2/ 2*;1 &;//, ,(/6 &;; 70<;!-
<03!4*33 &41 1*=/.*1 2!63*;, *4.!(*;5 ./
2!3 .01!*3 * A&3 6/(* .2&4 & 2041(*1
5*&(3 /;1 &. 2!3 1*&.2 &41 ;*, <*2!41 2!6
& 406<*(/, A/(D3 /4 *.2!73 7253!-3
&3./4/65 6&.2*6&.!-3 &(. &41 ;!.*(&.0(*
A(!..*4 !4 &4 &..(&-.!=* &41 &4!6&.*1
%6&44*(* 2&=* .2* .!.;*3 /, 3/6* /,
2!3 A(!.!4>3 <0. /4;5 3-&4.5 ,(&>6*4.3
(*6&!4 *6/-(!.03 A&3 .2* 6/3. ;*&(4*1
(**D <*,/(* (!3./.;* 4 .2* 2!3./(5/,
72!;/3/725 2* 2&3 & 37*-!&; !67/(.&4-* & &3
.2*(*&;,/041*(/, A2&.!3 -&;;*1 .2* ./6!-
2*/(5 /(.2* 1/-.(!4* .2&. .2* 04!=*(3*
A&3 ,/(6*1 /0. /, &./63 .!3 .(0* .2&.
2!3 6&3.*(*0-!7703 2&1 &;(*&15 3.&(.*1
.2* 3&6* !1*& --/(1!4> ./ .2!3 .2*/(5
.2*(* &(* !4 .2* 04!=*(3* .A/ ,041&6*4.&;
7(!4-!7;*3 .2* 0;;&41 .2* /!1 2* 0;;
!3 ,/(6*1 <5 .2* &./63 A2!-2 &(* 7(!6!.!=*
</1!*3 /, ;!D*d :0&;!.5 <0. 1!,,*(*4. ,/(6
!440 6*(&<;* !41!=!3!<;* !21*3.(0-.!<;*
&;;!4> ,/(*=*(.2(/0>2 .2* !4,!4! =/1 .2*
;&(>* &41 2*&=!*(&./63 /=*(.&D* &41 3.(!D*
07/4 .2* 36&;;*(/4*3 &41 .2* /<;!:0* &41
-!(-0;&(6/.!/43 .2*4-* &(!3!4> &(* .2*
<*>!44!4> /, .2* , /(6&.!/4 /, .2* A/(;1
2* 1!,,*(*4-* /, .2!4>3 &(!3*3 ,(/6 .2* ,&-.
.2&. &./63 1!,,*(!4 406<*(3!0* /!6 &41
&((&4>*6*4. 2* 3/0; -/43!3.3 /, 36//.2
(/041 &./63 (*3*6<;!4> .2/3* /, ,!(* .2*3*
&(* .2* 4!6<;*3. &41 !4 .2*!(6/.!/4
7*4*.(&.!4> .2* A2/;* </15 7(/10-* .2*
72*4/6*4& /, ;!,* 2* !67(*33!/43 /4 .2*
3*43*3 &(!3* ,(/6 .2* *,,*-. 7(/10-*1 !4
/0(3*43*3 <5 .2* ,!4* &./63 A2!-2 1*.&-2
.2*63*;=*3 ,(/6 .2*4 30(,&-* /, .2!4>3
2&4>* ! !4 &;; -&3*3 4/.2!4> <0. .2*
04!/4 /(3*7&(&.!/4 /, &./63
2* *.2!-3 /, *6/-(!.03 &(* <&3*1 /4
.2* .2*/(5 /, 2&77!4*33 &41 <5 2&77!4*33
2* 6*&43 .2* 3*(*4!.5 /, .2* 6!41 041!3F
.0(<*1 <5 ,*&(/(<5 &45.2!4> *;3* 2*
-/4.(/, .2* &77*.!.*3 &..&!4&<;* <5 .*6F
7*(&4-* &41 3*;,"-0;.0(* !3 .2* 4*-*33&(5
-/41!.!/4 /, .2!3 /1 >//1 /(!.3 / 4
3&D* A!.2/0. .2* !4,;0*4-* /, *(/(2/7*
!3 .2* /4;5 .2!4> A2!-2 3*-0(*3 !4A&(1
-/.*4.6*4. 2* 353.*6 /, 7!-0(03 !3
/,&;;/.2*(&4-!*4.353.*63 .2* 6/3.-;/3*;5
-/44*-.*1 A!.2 .2&./, *6/-(!.03
*6 72<14 8$9 /4/, *; 03/, ;*03!3
&41 .J4!(& * A&3 .*41*1 !4 !4,&4-5

<5 * 6 *.*(A2*4 !4 2*(3*&(-2 ,/(*(3*" 72?4* 32* -&6* ./ ;*03!3 !4 .2* ,/(6 /, &4 /;1 A/6&4 * 6 *.*(,/041 -/6,/(.! !4 .2* -&(* /, .2* -2!;1 &41 A!32*1 ./ -/4,*(!6 6/(.&;!.5 /4 2!6 <5 &4/!4.!4> 2!6 &. 4!>2. /=*(.2* ,!(* 2* !4.*(,*(*4-* /, .2* 6/.2*(2/AF *=*(7(*=*4.*1 .2* ,0;,!;6*4. /, 2*(1*3!>4 9 & (!7./;*6 03 !4 3/6 *=*(F 3!/43 .&D*3 .2* 7;&-* /, *6/72//4 9 &)

8@9 /4 /, 2*3*03 &41 2&*1(& !.2 2!3 <(/.2*(-&6&3 2* A&3 -/6 6!..*1 <5 2*3*03./ :*72*4/(7(!4-* /, .2* <&4.*3 !4 0<-*& 2!3"A&3 &. .2* .!6* A2*4 2*3*03 /4 2!3 (*.0(4 ,(/6 .2* ;/A*((*>!/43 ,/041 *4*3.2*03 !4 7/33*33!/4 /, .2* 3/=*(*!>4.5 /, ..!-& &41 A&3 &40!/03 ./ *6!>(&.* ./ -5(3 4 .2* 7/3." /6*(!- 3./(5 *6/72//4 &41 -&6&3 6&(-2 ./ (/5 A!.2 .2*!(7(/.*-./(;*72*4/(,.*(.2* -/4:0*3./, .2* -!.5 .2*5 ;!<*(&.* .2*!(>(&41 6/.2*(L .2(& &41 .&D* 7/33*33!/4 &>&!4 /, .2*!(,&.2*(3 D!4>1/6 &3 *4*3F .2*03 A2/ !4 /6*(!3 .2* -2!*, /, .2* .2*4!&43 <*,/(* (/5 2&1 ,&;;*4 .2*(* 9 ! 9 2*4 ! 6*1*3 A&3 .2(/A4 07/4 .2* -/&3./, ..!-&/4 2!3 (*.0(4 ,(/6 (/5 &41 <*>&4 ./ 7;041*(!. !4 !>4/(&4-* /, A2*(* 2* A&3 *6/72//4 .//D .2* &;;&1!06 ,(/6 2!6 0<3*:0*4.;5 2* 7(/.*-.*1 .2* -2!;1(*4 /, *(&-;*3 &>&!43. .2* 7*(3*-0.!/43 /, 0(53.2*03 &41 D!;;*1 .2* ;&..*(!4 <&..;* 4 2!3 (*.0(4 ,(/6 (/5 2* 2&1 <*.(/.2*1 2!63*;, ./ 25;;!3 1&0>2.*(/, .2* D!4>/, 2(&-* 4 .2* 1&5 &77/!4.*1 ,/(.2* 6&((!&>* 2* 1!1 4/. &77*&(&41 25;;!3 2&4>*1 2*(3*;, &41 A&3 -2&4>*1 !4./ &.(**

*613 (**D A/(1 6*&4!4>M 8$9 .2* 7*/7;* *!.2*(!4 -/4.(&3. A!.2 & 1*37/. /(.2* 4/<!;!.5 /(&3 .2* 1*7/3!./(5 /, 307(*6* 7/A*(8@9 & 1!3.(!-. /((*>!/4 203 !4 .2* .2*4!&4 3.&.* .2* 1*4!*3 A*(* .2* 2041(*1 &16!4!3.(&.!=* 1!3.(!-.3 ,/(6*1 <5 ;!3.2 4*3 /, A2!-2 .*4 *(* -/4.&!4*1 !4 *&-2 /, .2* ./4 .(!<*3 /(2* # A*(* 4&6*1 &,.*(.2* 36&;, ./A43 &41 2&6;*.3 &41 3/6*.!6*3 ,(/6 1!3.!4>0!32*1 ,&6!;!*3 ;!=!4> .2*(* &41 /A4!4> 7(/7*(.5 &. .2* .!6* /, .2* 1!=!3!/4 4 -/0(3* /, .!6* .2* 406<*(/, .2* # !4-(*&3*1 .2(/0>2 *0.*43!/4 &41 1!=!3!/4 3/ .2&.! !4 .2* &>* /, 0>03.03 !. &6/04.B .//$UC --/(1!4>./ .2* /(!>!4&; &((&4>*6*4.&;;7*(3/43 A2/ <*;/4>*1 ./ & # ;!=*1 !4 !.3 7(*-!4-.3 2* 1*3-*41F &4.3 <*;/4>*1 ./ .2* 3&6* # &3 .2*!(&4-*3./(3 *=*4 .2/0>2 .2*5 4*!.2*(;!=*1 4/(/A4*1 7(/7*(.5 .2*(* /7&33 ,(/6 /4* # ./ &4/.2*(A&3 /4;5 7/33!<;* <5 &1/7.!/4 /A4 7(/7*(.5 !4 &3.(&4>* # !. A&3 4*-*33&(5 ./ 7&5 &37*-!&; .&(./ !. 3 *=*(5 -!.!Q*4 A&3 /<;!>*1 ./ <*;/4> ./ & # $ .2* -/67;*.* /,,!-!&; 1*F 3-(!7.!/4 /, 2!6 !4-;01*1 .2* 4&6* /, 2!3 # &3 A*;;&3 /, 2!3 ,&.2*(=*(5 # 2&1 -*(.&!4 -/6 6/4 (*;!>!/03 (!.*3 7(*3!1*1 /=*(<5 37*-!&; 7(!*3.3 2* # " $ /(6*6<*(3 /, & # $ 2&1 &;3/ & -/6 6/4 7(/7*(.5 & -/6 6/4 -2*3., /((*- !=!4> .2* (*4.3 &41 .&0*3 -/6 6/4 /,,!-*(3 A!.2 & # " $ .2*!(2*&1 &41 -/6 6/4 6**.!4>3 ,/(.2* 1!3-033!/4 -/6 6/4 !4.*(*3.3 *;*-.!/43 &41 3/ ,/(.2 .2*3* 6**.!4>3 .2* 4&6*3 /, .2* 5/04> -!.!Q*43 /, *!>2.**4 5*&(3 /;1 A*(* A(!..*4 !4 .2* (*>!3.*(3 /, .2* # $&41 &,.*(A/5*&(3 A*(* *4(/;;*1 !4 .2* ;!3.3 /, 7*(3/43 :0&;!F ,!*1 ./ .&D* 7&(. !4 .2* 6**.!4>3 .2&. A&3 &;3/ &. .2*3* &33*6<;!*3 .2&. .2* (*>0;&((*=!3!/4 /, .2* ;!3.3 /, .2*4!&4 -!.!Q*43 .//D 7;&-*

6/3.2?4`3 2 >(*&.*3. /(&./(/, &4.!:0!.5 </6 !4 RC !4 .2* ..!- 3*&4,& !3 ,&.2*(A2/ </(* .2* 3&6* 4&6*1 A&3 .2* A*&;.25 /A4*(/, & 6&40,&-./(5/,&(63 *1!*1<*,/(* 2!33/4 A&3 3*=*45*&(3 /;1 &41 .2* 5/04> *6/3F .2*4*3 >(*A 07 041*(.2* .*41*(-&(* /, 2!3 6/.2*(2* </53 &6<!.!/4 A&3 *0-!.*1 <5 .2* <(!;;!&4. 30--*33*3 /, .2* /(&./(&;!3.(.03 &41 2* A&3 *&>*(&. .2* 3&6* .!6* ./ <(!4> ./ K03.!-* 2!3 1!32/4*3. >0&(1!&(3 ,/(.2* A(/4> 1/4* ./ 2!6 &41 2!3 3!3.*(3 * .2*(*,/(* 1*=/.*1 2!63*;, ./ .2* 3.015 /, /(&./(5 041*(.2* 37*-!&; !43.(0-.!/4 /, 33*03 2* !4,;0*4-* /, .2!3 6&3.*(!3 =*(5 *=!1*4. !4 2!3 37**-2*3 1*;!=*(*1 !4 ?C &>&!43. /4* /, 2!3 >0&(F 1!&43 72 <03 A!.2 2!3 <(/.2*("!4";&A 4*.J * 6/3.2*4*3 A/4 2!3 -&3* <0.!1!1 4/.30--**1 !4 >*..!4> *!.2*(,(/6 72/<03 /(,(/6 2!3 /.2*(>0&(1!&43 &45 &1*:0&.* -/67*43&.!/4 ,/(.2* ;/33 /, 4*&(5 .2!(.**4 .&;*4.3 83/6* E@ ?NN9 A2!-2 2* 2&1 303F .&!4*1 /3077/(.2!63*;, &41 2!3 (*;&F .!/43 2* .//D 07 .2* ;0-(&.!=* <03!4*33 /, A(!.!4>37**-2*3 ,/(/.2*(3 &3 A*;;&3 &77*&(!4> !4 7*(3/4 &3 &4 &1=/-&.* !4 .2* -/0(.3 !3 .A/,!(3.&..*67.3 &. &11(*33" !4> .2* &33*6<;*1 7*/7;* A*(* 7&(.;5 /A!4> ./ .2* 04A!*;1!4*33 /, 2!3 3.5;* 7&(.;5 ,(/6 &,0;.5 1*;!=*(5 -/67;*.* ,&!;0(*3 0. *6/3.2*4*3 3/ ,&(,(/6 <*!4>1&04.*1 6&1* 307*(206&4* *,,/(.3 ./ /=*(-/6* .2* 1*,*-.3 *4.&!;*1 <5 &A*&D -2*3. &41 & 3.&66*(!4> ./4>0* &41 ./ 7*(,*-. 2!63*;,

in the art of delivery. In this he was aided by the sympathy and experience of several friends, especially the actor Sătўrŭs. Thus prepared, he appeared again in public in 355 B.C. with his celebrated speech against the law of Lĕptĭnēs, and then made good his position on the rostrum. Two years afterwards he started on his political career. His object from the first was to restore the supremacy of Athens through her own resources, and to rally the Greek states round her against the common enemy, whom he had long recognized in Philip of Macedon. It was in 351 B.C. that he first raised his voice against the Macedonian king. Philip, invoked by the Thessalians to help them against the Phocians, had conquered the latter, and was threatening to occupy the pass of Thermŏpўlæ, the key of Greece Proper. In his first Philippic, Demosthenes opened the conflict between Greek freedom and the Macedonian military despotism. This contest he carried on with no other weapon than his eloquence; but with such power and persistence that Philip himself is reported to have said that it was Demosthenes and not the Athenians with whom he was fighting. On this occasion he succeeded in inspiring the Athenians to vigorous action. But his three Olynthiac orations failed to conquer the indolence and short-sightedness of his fellow-citizens, and their ally the city of Olynthus was taken by Philip in 348. In 346 he was one of the ambassadors sent to conclude a peace with Philip. His colleagues Philŏcrătēs and Æschĭnēs were bribed with Macedonian gold, and Demosthenes did not succeed in thwarting their intrigues, which made it possible for the king to occupy Thermopylæ, and secure therewith the approach to Greece. In his speech on the Peace he advises his countrymen to abide by the settlement. But the ceaseless aggression of the Macedonian soon provoked him again to action, and in the second and third Philippic (344 and 341) he put forth all the power of his eloquence. At the same time he left no stone unturned to strengthen the fighting power of Athens. His exertions were, on this occasion, successful: for in spite of the counter efforts of the Macedonian party, he managed to prevail on the Athenians to undertake a war against Philip, in the victorious course of which Pĕrinthus and Byzantium were saved from the Macedonian despotism (340). But it was not long before the intrigues of Æschines, who was in Philip's pay, brought about a new interference on the king's part in the affairs of Greece. As a counter-move Demosthenes used his eloquence to persuade the Thebans to ally themselves with Athens: but all hope was shattered by the unhappy battle of Chærōnēa (B.C. 338), in which Demosthenes himself took part as a heavy-armed soldier. Greece was now completely

* DEMOSTHENES.
(Vatican Museum, Rome.)

in the hands of Philip. The Macedonian party tried to make Demosthenes responsible for the disaster; but the people acquitted him, and conferred upon him, as their most patriotic citizen, the honour of delivering the funeral oration over the dead. In 336, after Philip's death, Demosthenes summoned

YO!;*' A&3' 1*=!3*1' 041*(' .2*' *&(;5' /6&4' *67*(/(3' .'!4=/;=*1';/33' /,' -!=!;' (!>2.3' &41' >*4*(&;;5'&;3/' /,'7(/7*(.5
*34;./(3' 8 ! * ! /3
*0-J;!A ' 4' (**D' 65.2/;/>5' .2*' 3/4' /,' (/6*.2*03' &41' ;B6*4 9 203<&41' /,' 5((2&' .2*' 1&0>2.*(' /,' 7!6*.2*03' 6/4&(-2' /,' 2.2!&' !4' 2*33&;5' L*03' 2&=!4>' (*3/;=*1' ./' 1*3.(/5'.2*' 1*>*4*(&.*' (&-*' /,' 6&4D!41' <5'&' >(*&.',;//1' *0-&;!/4' <5' .2*' &1=!-*' /,' 2!3' ,&.2*(' <0!;,'&' A//1*4' -2*3.' !4' A2!-2' 2*' (*3-0*1' /4;5' 2!63*;,' &41' 2!3' A!,*' ,(/6' .2*' >*4*(&;' 1*3.(0-.!/4' ,.*(' 4!4*' 1&53' 2*' ;&41*1' /4' /04.' &(a' 4&3303' &41' 3&-(!,!-*1' ./' L*03' 250!13' 8A2/' 3*413' 2*;7' <5' ,;!>2.9' 4:0!(!4>' /,' .2*' (&-;*' /,' 2 6!3'&.' *;72!' 2/A'.2*' 206&4' (&-*' -/0;1' <*' (*4*A*1' 2*' (*-*!=*1' &43A*(' .2&.' 5((2&' &41' 2*' 32/0;1'=*!;' .2*!(' 2*&13' &41' .2(/A' <*2!41' .2*6' .2*' </4*3' /,' .2*!(' 6/.2*(' 2*5' 041*(3.//1' .2*' 7(!*3.*33' ./' (*,*(' ./' 3./4*3' A2!-2' .2*5' &--/(1!4>;5' .2(*A' <*2!41' .2*6" &41' .2*' 3./4*3' /,' *0-&;!/4' .0(4*1' !4./' 6*4' .2/3*' /,' 5((2&' !4./' A/6*4' !.2' .2!3' 4*A' (&-*' *0-&;!/4' ,/041*1' &' D!4>1/6' !4' /-(!3' A2*(*' .2*' >(&=*' /,' 5((2&' A&3' 32/A4' 2&.' /,' *0-&;!/4' A&3' 3&!1' ./' <*' =!3!<;*' &.' .2*43' K4' .2*' &4-!*4.'.*67;*' /,' .2*' ;567!&4' L*03' A2!-2' 2*' A&3' 3077/3*1' ./' ,;&=*' <0!;.
=((&' 4*' /,' .2*' .2(**' >/11*33*3' A/(32!77*1' &6/4>' .2*' .&;!&4' .(!<*3' 2*' A&3' 3077/3*1' ./' 7(/.*-.' 4*A"</(4' -2!;1(*4' &41' .2*!(' 6/.2*(3' &>&!43.' 1!3.0(<&4-*' ,(/6' .2*' >/1' !;= 403' 83**' ! ^/39
=(3V(!06' 'A
=/.!/' 8 &.!49' ' (;!>!/03' -*(*7!/45' <5' =!(.0*' /,' A2!-2' &' >*4*(&;' A2/3*' &(65' &3' !4' 1!3.(*33' /,,*(*1' 07' &3' &4' &./4*6*4.' ./' .2*' >/13' <*;/A' &41' &' 6*&43' /,' &=*(.!4>' .2*!(' A(&.2' .2*' &(65' -!.5' &41';&41' /,' .2*' *4*65" /(' *=*4' 2!63*;,'&3' A&3' .2*' -&3*' A!.2' .2*' `-4' 2*' >*4*(&;'3.&.!1!4>' /4' &' 37*&(' &41' A!.2' =*!;*1' 2*&1' (*7*&.*1' &' 3/;*64' ,/(60;&' 1!-.&.*1' ./' 2!6' <5' .2*' /4.!,*0' ,' .2*' -!.5' &41' ;&41' /,' .2*' *4*65' A*(*' /,,*(*1' .2*' >/13' A*(*' 3/;*64;5' !4=!.*1' ./' <0(4' .2*' ;&41' /(' -!.5'# ' + (' 2*' ,&.*' /,' .2*' 1*=/.*1' 7*(3/4' A&3' ;*,.' !4' .2*' 2&413' /,' .2*' >/13' ,' 2*' 30(=!=*1' &4' !6&>*' &.' ;*&3.' 3*=*4' ,**.' 2!>2' A&3' <0(!*1' !4' .2*' >(/041' &41' &' <;//15' &-(!,;-*' /,,*(*1' /=*(' !.' 2*' A&3' 6*&4A2!;*' 2*;1' !4-&7&<;*' !4',0.0(*' /,' 7*(,/(6!4>' &45' /.2*(' (*;!>!/03' (!.*' *!.2*(' /4' 2!3' /A4' <*2&;,' /(' /4' .2&.' /,' .2*' 3.&.*
!&' ' / '
!&1*6' # ' 2*' A2!.*' ,!;;*.

(/041' .2*' <(/A' A2!-2' A&3' .2*' *6<;*6' /,' 3/=*(*!>4.5' ,(/6' .2*' .!6*' /,' ;*0&41*(' .2*' (*&.' 3*3&(' (*,03*1' !.' A2*4' /,,*(*1' 2!6' <5' 4./4!43' &41' !.' A&3' 4/.' !4' -/4F 3*:0*4-*' A/(4' <5' .2*' /6&4' *67*(/(3' -(0-*7.' !4' &' ,*A' -&3*3' 0.' A2*4' .2*' 3*&.' /,' >/=*(46*4.' A&3' (*6/=*1' ./' 50&4.!06' /43.&4.!4*' &1/7.*1' .2*' (**D' *6<;*6' /,' (-B&;.5
!&*(;;' /' $ ' ")
!&4&' 4' &4-!*4.' .&;!&4' 1*!.5' A2/3*' 4&6*' !3' .2*' ,*6!4!4*' -/04.*(7&(.' /,' ;&403' 2*' A&3' .2*' >/11*33' /,' .2*' 6//4' /,' .2*' /7*4' &!(' &41' /7*4' -/04.(5' A!.2' !.3' 6/04.&!43' ,/(*3.3' 37(!4>3' &41' <(//D3' /,' .2*' -2&3*' &41' /,' -2!;1<!(.2' 4' .2*' ;&..*(' -&7&-!.5' 32*' ;!D*' 04/' </(*' .2*' 3*-/41' .!.;*' /,' 0-!4&' 203' 2*(' &..(!<0.*3' A*(*' &D!4' ./' .2/3*' /,' .2*' (**D' (. 6! ' &41' !4' .2*' -/0(3*' /,' .!6*' 32*' A&3' -/67;*.*;5' !1*4.!,!*1' A!.2' 2*(' &41' A!.2' -J.*' A2/' (*3*6<;*1' 2*(' 2*' 6/3.' -*;*<(&.*1' 32(!4*' /,' !&4&' A&3' &.' (!-!&' !4' &' >(/=*' #" ' ,(/6' A2!-2' 32*' A&3' 3/6*.!6*3' 3!67;5'-&;,*1' >6 (*4" 3!3' 2!3' A&3' /4' .2*' <& 3' /,' .2*' 6/1*6' ;&D*' /,' *6!' A2!-2' A&3' -&;,*1' .2*' 6!(((' /,' !&4&' *(*' &' 6&;*' 1*!.5'4&6*1' !(<;03' A&3' A/(32!77*1' A!.2' 2*79' &'>/1'/,'.2*',/(*3.' &41' .2*' -2&3*' *' A&3' !4' ;&.*(' .!6*3' !1*4.!,!*1' A!.2' !77 ;5.03' .2*' (!3*4' ,&=/0(!.*' /,' (.*6!3' &41' .2*' /;1*3.' 7(!*3.' /,' .2*' 3&4-.0&(5' #7 -' > " ' *' A&3' 3&!1' ./' 2&=*' /(!>!4&.*1' .2*' -03./6' /,' >!=!4>' .2*' 7(!*3. 3',,!-*' ./' &' (04&A&5'3;&=*' A2/' <(/D*' /,,' &' <(&4-2' ,(/6' &' 7&(.!-0;&(' .(*' !4' .2*' 7(*-!4-.3' &41' 3;*A' 2!3' 7(*F 1*-*33/(' !4' /,,!-*' !4' 3!4>;*' -/6<&.' 4' -/43*:0*4-*' /,' .2!3' 60(1*(/03' -03./6' .2*' (**D3' -/67&(*1' !&4&' /,' (!-!&' A!.2' .2*' &0(!-' (.*6!3' &41' &' ,&<;*' &(/3*' .2&.' (*3.*3' 2&1' <(/0>2.' .2*' !6&>*' /,' .2&.' >/1' !4./' .2*' >(/=*' !&4&' A&3' -2!*,;5' A/(F 32!77*1' <5' /6*4' A2/' 7(&5*1' ./' 2*(",/(' 2&77!4*33' !4' 6&((!&>*' /(' -2!;1<!(.2' 2*' 6/3.' -/43!1*(&<;*' .*67;*' /,' !&4&' &.' /6*' A&3' !4' .2*' =*4.!4*' ,/041*1' <5' *(=!03' 0;;!03' &3' .2*' 3&4-.0&(5' /,' .2*' &.!4' -/4F ,*1*(&-5' 4' .2*' 1&5' /,' !.3' ,/041&.!/4' 8 0>03.' $ 9' .2*' 3;&=*3' 2&1' &' 2/;!1&5' 2!3' !&4&' A&3' -/6K,;*.*;5' !1*4.!,!*1' A!.2' .2*' 3!3.*(' /,' 7/;;/' &41' A/(32!77*1' 3!67;5' &3' (.*6!3' &.' .2*' *-0;&(' &6*3' ' 3!B' /,' .2*' /(!>!4&;' 1!,,*(*4-*' 2/A*=*(' (*6&!4*1' /A3' A*(*' /,,*(*1' ./' .2*' !&4&' /,' .2*' =*4.!4*' &41' 2*(' .*67;*' &1/(4*1' A!.2' -/A3' 4/.' A!.2' 3.&>3' 2/(43' <0.' !.' A&3' .2*' 1/*' A2!-2' A&3' 3&-(*1' ./' (.*6!3' #L ' ' &
;&*.&' /)

3*.*.3 8 .2*4!&49 0<;!-&!"<!.(&./(3 ./ A2/6 .2* 7&(.!*3 !4 &7(!=&.* 30!. 6!>2. &77;5 !, .2*5 A!32*1 ./ &=/!1 &(.(!& <*,/(* .2* *;!&3.&* /(.2!3 /<*-. & -/43!1*(F &<;* 406<*(/, -!.!Q*43 ?N 5*&(3 /, &>* A*(* 4/6!4&.*1 2*5 (*-*!=*1 4/ 3&;&(5 <0. & ,**/, & 1(&-26&8&</0. J ,(/6 *&-2 7&(.5 &41 &3 60-2 ,(/6 .2* -/67;&!4&4. ,/(*=*(5 &1K/0(46*4. 4 -&3* /, 6!3-/4F 10-. .2*5 -/0;1 <* -&;;*1 ./ &--/04. 2* % " ") A*(* &33!>4*1 ./ .2* 7&(.!*3 <5 ;/.<5 .2* 6&>!3.(&.* A2/8&--/(1!4>./ .2* -2&(&-.*(/, .2* -&3*9 A/0;1 2&=* 7(*3!1*1 !4 .2* -/0(./ , .2* *;!3*& / .2!3 6&>!3F .(&.* 8!4 -&3* .2* 7&(.!*3 1!1 4/ &77*&; ./ .2* *;!3*& &>&!43. !.9 .2* % " 2&41*1 !4 .2* 3*4.*4-* 2* 2&1 1*;!=*(*1 &3 .2* (*30; /,'"2!3 !4=*3.!>&.!/4 ./ 2&=* !. 3!>4*1 &41 70<;!32*1 &41 .203 6&1* ;*>&; 2* 4&6* /, % " A&3 &;3/ >!=*4 ./ 7(!=&.* &(<!.(&./(3 4&6*1 <5 &>(**6*4 <*.A**4 .2* 7&(.!*3/4 .2* 041*(3.&41!4>.2&. .2*!(1*-!3!/4 A&3 ./ <* &--*7.*1 A!.2/0. &77*&; ;13!& ,*3.!=&; /, &./4*6*4. 2*;1 <5 .2* A2/;* 7/70;&.!/4 /, ..!-& /4 .2* @ (1 /, 4.2*3.*(;/4 8 *<(0&(5 ./ &(-29 ./ L*03 *!;;-2;/3 8.2* L*03 /, 7(/7!.!&./(5 /,,*(!4>39 2* /,,*(!4>3 A*(* <;//1;*33 &41 -/43!3.*1 -2!*,;5 /, -&D*3 &.!;13 @ & (;&Q/6D. 8 &.!4 " " 1 2* <(/&1 7&33&>*3 !4 .2* (**D .2*&.(* A2!-2 2/(!Q/4.&;;5 1!=!1*1 .2* 30--*33!=* (/A /, 3*&.3!4./ .A/ /(.2(** ,;!>2.3 9 ;-.*&(-243.% , "* 1 (**D72!F ;/3/72*(&41 &0.2/(& 1!3-!7;* / , (!3./.;* * A&3 </(4 &. *33&4& !4 !-!;5 <0. ;!=*1 6/3.;5 !4 (**-* &41 *37*-!&;;5 !4 .2* *;/7/44*3* * A&3 .2* &0.2/(/, 6&45 A/(D3 /4 >*/>(&725 2!3./(5 7/;! .!-3 &41 72!;/3/725 4* /, 2!3 6/3. !67/(.&4. A/(D3 &3 8 $!4 .2(** </!D3 A2!-2 -/4.&!4*1 &4 &--/04. /, .2* >*/>(&725 /, (**-* !.3 7/;!.!-&; 1*=*;/76*4. &41 .2* -/41!./4 /, !.3 =&(!F /03 3.&.*3 !.3 70<;!- &41 7(!=&.* ;!,* !.3 .2*&.(* >&6*3 (*;!>!/43 *.- 4;5 ,(&>F 6*4.3 /, !. (*6&!4 f 2* % 5 ! " /, !-*(/ !3 3077/3*1 A!.2>//1 (*&3/4 ./ <* ,/041*1 07/4 & A/(D <5 !-&*&(-203 g <&1;5 A(!..*4 1*3-(!7.!/4 /, (**-* !4 $VN !&6<!- , <*&(3 .2* 4&6* /, !-3*&(-203 <0. 8&3 .2* &-(/3.!- &. .2* <*>!44!4> 32/A39 !3 (*&;;5 ,(/6 .2* 2&41 /, & -*(.&!4 !/453!03 3/4 /, &;;;72/4 2(** !4.*(*3.!4> &41 4/. 04!67/(.&4. ,(>6*4.3 /, & A/(D /4 4 " 2&=* &;3/ <**4 A(/4>;5 &..(!<0.*1 ./ 2!6 2*!((*&;& &0.2/(&77*&(3 ./ 2&=* <**4 &4 04D4/A4 A(!.*(4&6*1 *(&1!1*3 A2/ ,;/0(!32*1 @RN - ;-&3.*(;14 3 ! !-* 8 &6*3 A!.29 &6*3 A!.2 1!-* A*(* /, 2!>2 &4.!:0!.5 &41 =*(5 7/70;&(&6/4> .2* (**D3 2*5 *(* 030&;;5 7;&5*1 /4 & </&(1 A!.2 & =*33*, -&;;*1 & ./A*(9 \ "& $ # $ *.-9 4&((/A*(&. .2* ./7 .2&4 &. .2* </../6 &41 ,!..*1 !43!1* A!.2 >(&10&;;5 1!6!4!32F !4>32*;=*3 2*(* A*(* .A/ D!413 /, >&6*3 4 .2* ,!(3. .2(** 1!-* 9, /!L $ 1$ &41 !4 ;&.*(.!6*3 .A/ A*(* 03*1 2*3* A*(* 32&7*1 ;!D* /0(1!-* &41 A*(* 6&(D*1 /4 .2* /77/3!.* 3!1*3 A!.2 .2* 1/.3 $"? @"V "C 2* >&6* A&3 1*-!1*1 <5 .2* 2!>2*3. .2(/A &41 *&-2 .2(/A 2&1 & 37*-!&; 4&6* 2* <*3.8 /(C O ?9 A&3 -&;;*1 /(< $ .2* A/(3.8 0$9 .2* 1/>., /(" 1 4 .2* 3*-/41 ,/0(1!-* 9 /(1 A*(* 03*1 6&1* /, .2* </4*3 /, /0*4 32**7 /(>/&.3 /(!6!.&.!/43 /, .2*6 !4 6*.&; /(!=/(5 2*5 2&1 ,/0(;/>3!1*3 .A/ ,A2!-2 /4* -/4-&=* &41 .2* /.2*(-/4=*0 A*(* <(/&1 &41 .2* /.2*(.A/ 4&((/A /4* <*!4> 6/(* -/4.(&-.*1 .2&4 .2* /.2*(&41 .A/ 7/!4.*1 *413 /4 A2!-2 .2*5 -/0;1 4/. 3.&41 &41 A2!-2 .2*(*,/(* A*(* 4/.-/04.*1 2* .A/<(/&1 3!1*3 A*(* 6&(D*1 &41 C ,/ .2* 4&((/A 3!1*3 .2* -/4.(&-.*1 /4* A&3 6&(D*1 ?&41 .2* A!1*(/4* $ 3/ .2&. @ &41 V A*(* A&4.!4> 3 !4 .2* /.2*(>&6* 3/ 2*(* *=*(5 7/33!<;* .2(/A 2&1 !.3 4&6* 2* ;0-D!*3. .2(/A.< # 1A&3 ,/0(1!,,*(*4.406<*(3$ C ?" .2* 04;4-D!*3. 1 ,/0(&-*3 !-!4> &3 &>&6* /, 2&Q&(1 A&3 *&(;5 ,(F <!11*4 !4 /6* &41 /4;5 &;;/A*1 &. .2* # I 2* 7*4&;;5 A&3 &,!4* &41 # 2* &*1 *3 A*(* (*B/43!<;*, /(7(*=*4.!4> 1!-!4> !4 .&=*(43 ,& 7(!=&.* !41!=!10&;& A*1 !. !4 2!3 2/03* 2* 2&1 4/ ;*>&; (*6*15 ,/(&45!((*>0;&(!.!*3 .2&. 6!>2. /--0(4 37!.* /, .2!3 1!-!4> A&3 :0!.-/0!6/4 &. 1(!4D!4> </0.3 *37*-!&;;5 041*(.2* *67!(* 41**1 3/6* *67*(/(3 ;01!03 A*(* 7&33!/4&.* 7;&5*(3 .2*(3 2/A*=*(1!1 .2*!(<*3. ./ -2*-D .2* *=!; 03.!4!&4 A*4. 3/,&(&3 ./ &;;/A &-;&!6 ,/(.2* (*-/=*(5 /, 6/4*5 ;/3. &. 7;&5 !-.&./(2* &.!4 .*(6 ,/(& 6&>!3F .(&.* &77/!4.*1 ,/(37*-!&; *6*(>*4-!*3 &,.*(&037!-*3 10;5 .&D*4 <5 .2* -/430;3 /4 .2* -/6 6!33!/4 /, .2* 3*4&.* 2* 1!-.&./(A&3 4*=*(&77/!4.*1 ,/(6/(* .2&4 3!0 6/0.23 2* ,!(3. !43.&4-* /, .2* &77/!4.6*4. /--0((*1 !4 VN (2* 1!-.&./(A&3 030&;;5 .2/0>2 4/. &;A&53 -2/3*4 ,(/6 .2* 406<*(/, " /(

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6&41 / , .2 *;72!-/(&-;* !4 1!3.&4. .(&=*;3 .2(/0>2 .2 4/(.2*(4 (*>!/43 / , .2 / 6&4 *67!(* &3 ,&(&3 .2 1(53.2*4*3 /(4!*7*(&4& .2 *.) ;; .2!3 .!6 2 A&3 3.015F !4> 72!;/3/725 ./ A2!-2 2 2&1 7(*=!/03;5 <**4 &=*(3* !4 37!.* / , 2!3 ,(!*4132!7 A!.2 7/;;/4!03 /, 5 4& !3 ;*&4!4> A&3 !4 .2 1!(*-.!/4 /, ./!-!36 4 .2*&--*33!/4 /, 2!3 ,(!*41 /--*!03 *(=& 8,(/6 A2/6 2 ./ D .2 4&6* $ 2 (*.0(4*1 ./ /6* A2*(2 37*4. .2 (*6&!41*(/, 2!3 1&53 A!.2 .2 *0-*7.!/4 /, & 32/(. 3.&5 !4 (03& *A&3 >(*&.;5 2/4/0(*1 </.2 <5 *(=& &41 2!3 30--*33/((&K&4 !3 -/4.*67/(&(!*3 -&;;*1 2!6 $(: 8H /;1*4 6/0.2 I9 ,(/6 2!3 7/A*(3 &3 & 37*&D*(A2!-2 2 /,.*4 1!37;&5*1 !4 70<F ;!-!4 /6* &41 *;3*A2*(* !>2.5 /, 2!3 37**-2*3 30(=!=* 2*5 32/0;1 (&.2*(<* -&;;*1 *33&53 /4 ./7!-3 /, 72!;/3/725 6/(&;3 &41 7/;!.!-3 *2&3 .&;*4. &41 (*,!4*6*4. &41 2*&;.25 6/(&; ./4* 4 2!3 3.5;* 2 !6!.&.*3 .2 <*3. 6/1*;3 *37*-!&;;5 ;&./ &41 *6/3.2*4*3 &41 2!3 A(!.!4>3 &(* /4 .2 A2/;* !4 37!.* / , 6&45 1*,*-.3 &6/4> .2 <*3.;!.*(&(5 7(/10-.!/43 /, .2&.&>* 8@9 = $ 8/($ 5 $ 2 " (**D 2!3./(!&4 >(&413/4 /, !/ 2(53/3./6/3 X</(4 &. !-&*&! !4 !.254!& $VV : * -&6 * *&(;5 ./ /6 * A!.2 2!3 J .2*(&33!03 7(/4!&403 &3 3*4&./(&41 2!>2 /,,!-!&; *(* 2 * (*-*!=*1 &-&(*,0;*10-&.!/4 4 &</0. $RN 2 <*-&6 * &6*6<*(/, .2 3*4&.* &41 <* A&3 &;/4>.!6 * !4 7(&-.!-* &3 &4 &1=/-&.* 4 $TC 2 * A&3 7(&*./(&41 &,.*(A&(13 -/430;; 3 7(/-/430;2 &16!4!3.*(*1 !4 30--*33!/4 .2 7(/=!4-*3 /, ,(!-& &;6&.!& &41 &4 4/4!&0 2 3.(!-. /(1*(A2!-2 2 2&1 6&!4.&!4*1 !4 &44/4!& 2&1 1(&A4 07/4 2!6 .2 2&.(*1 /, .2 041!3-!7;!4*1 7(&*F ./(!&43 A2/ 1*6&41*1 2!3 ;!,* ;*0&41*(=*(03 2/A*=*(4/. /4;5 32!*;1*1 2!6 <0. 4/6!4&.*1 2!6 2!3 -/;;*&>0* !4 .2 -/430;32!7 /, @@T .2 3&6 * .!6 2 &;;/A*1 2!6 , /(.2 3&D /, 2!3 /A4 7*(F 3/4&; 3&,*.5 ./ ;!=* /0.3!1 /6 10(!4> 2!3 .*(6 /, /,,!-* 2 4 .2!3 2&1 *07!(*1 .2 *67*(/(!4 -/43*:0*4- /, 2!3 &>* &41 A*&D 2*&;.2 >&= 2!6 ;*&= ./ :0!. .2 70<;!-3*(=!-* &41 (*.!(* ./ 2!3 4&.!=* -!.5 A2*(* 2 *41*1 2!3 1&53 *(* 2 -/6F 7;*.*1 2!3 >(*&. A/(D /4 /6&4 2!3./(5 ,(/6 .2 &((!=&; /, 4*&3 !4 .&;5 ./ ;03 /A4 -/430;32!7 !4 @@T 2!3 2 2&1 041*(.&D*4 &. .2 1!=!4* -/66&41 -/660F 4!-&.*1 ./ 2!6 !4 &1(*&6 * 37*4.*.A*4.5 .A/ 5*&(3 07/4 !. .*4 /4 .2 7(*7&(&./4 &41 .A*;=* /4 .2 *0*-0./4 .-/4.&!4*1RN

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!14 4 (**D 65.2/;/>5 .2 1&0>2.*(/ , - 403 &41 *.253 /(&--/(1!4> ./ &4/.2*(& -/!6. / , (&403 &41 &!& 5 L*03 32* A&3 6/.2*(/ , 72(1!.* A2/ A&3 2*(3*;,-&;;*1 !/4* . /1/4& 32* A&3 A/(32!77*1 !4 `(& 3 7;&-* &3 .2 A!,* / , L*03 *(4&6* !41** 1 *07(*33*3 !4 & ,*6!4!4* ,/(6 .2 &..(!<0.*3 / , L*03 K03 &3 .2 &.!4 04/ 1/*3 .2/3* / , 07!.*(2*4 .2 /(&-;* / , /1/4& ;/3.!.3 ,/(6*(!67/(.&4-* !/4* A&3 *-;!73*1 <5 *(& &3 .2 A!,* / , L*03 &41 -&6* ./ <* (*>&(1*1 &3 & 45672 / , /1/4&

]1453!& -*;*<(&.!/4 !4 2/4/0(/ , !/45303 A2!-2 A&3 2*;1 !4 .2*43 !4 & 37*-!&; 3*(!*3 / , *3.!=&;3 4&6*;5M 8$9 2* (/ (S 3077/3*1 ./ 2&=* <**4 !43.!.0.*1 <5 2*3*03 /4 2!3 (*.0(4 ,(/6 (*.* 2!3 A&3 -*;*<(&.*1 !4 .2* 6/4.2 / , 5 4*73 /4 8 -./<*(./ /=* 6F <*(9 A2*4 .2* >(&7*3 A*(* (!7* .2 A&3 3/ -&;;*1 , (/6 .2* 32//.3 / , =!4* A!.2 >(&7*3 /4 .2*6 A2!-2 A*(</(4* !4 & (&-* , (/6 .2 .*67;* / , !/45303 !4 !64&* & 3/0.2*(4 30<0(< / , .2*43 ./ .2* 3&4-.0F &(5 / , .2*4& -!(&3 !4 .2* 2&(</0(./A4 / , 2&;*(06 2* <*&(*(3 &41 (044*(3 A*(.A*4.5 5/0.23 8 (/ , 4/<;* 1*3-*4. A2/3* 7&(*4.3 A*(3.!;;*;!=!4> .A/ <*!4> -2/3*4 ,(/6 *&-2 / , .2* .*4 .(!<*3 2* =!-./((*-*!=*1 & >/<;*.:-/4.&!4!4> & 1(!4D 6&1* / , A!4* -2**3* 6*&; &41 2/4*5 &41 &4 2/4/(&(5 7;&-* !4 .2* 7(/-*33!/4 A2!-2 , /;;/A*1 .2* (&-* 2!3 7(/-*33!/4 !4

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(*-. &41 6/(*,&=/0(&<;* !1*& /, .2* /6&4

"7*/7;* &41 .2* >(/A.2 /, !.3 7/A*(&41 .203 ./ (*-/4-!;* .2*6 ./ .2* ^/6&4 5/D* !.2 .2!3=!*A2*3*.3,/(.2 .2*A!31/6 &41 .2*>//1 :0&;!.!*3/, .2*,/041*(3/, /6* G 2*</D!3,/041*1/4& .2/(/0>2 3.015/, ".2*&0.2/(!.!*3 &41 !4 37!.* /, !.3(2*./(!" "-&; ./4* &41 /, 6&45 /.2*(1*,*-.3 ,/(63 "/4*/, /0(-2!*,3/0(-*3/, !4,/(6&.!/407/4 &4-!*4. /6&4 2!3./(5 !4 !.3 !4.*(4&; &41 %*0.*(4&; 1*=*;/76*4. 2*/.2*((*6&!4!4> A/(D3/, !/453!03&(* 7&(.;5 /4 (2*./(!- a&(.;5/4;!.*(&(5-(!.!-!36 2*(2*./(!-&; A/(D3&(* 8&9 " ("1 M /(/4 .2* 1!,,*(*4.3.5;*3/, (**D 7(/3* 3.(0-.0(* 8?9& .(*&.!3*/4 (2*./(!- "A2!-2 2&3-*(.&!4;5 4/.-/6* 1/A4./ 03 !4 !.3 /(!>!4&;,/(6 2*-(!.!-&;A(!.!4>3&(* *33&53 /4 .2* &4-!*4. (**D -;&33!-3 7&(" ".!-0;&(;5 .2* /(&./(3 &41 &6/4> .2*6 *6/3.2*4*3 <0. &;3/ /4 (!3./.;* ;&./ "&41 20-B1;1*3 2*5&(* !4 7&(. .2(/A4 !4./ .2* ,/(6 /, ;*..*(3 ./ -/4.*67/(&(5 /6&43/, (*70.*

8C9 5 ": - " (**D 7/*./, .2* @41-*4.0(5 25643/, !!3 2&=* 30(=!=*1 /4*./ .2* 03* &;;; 7* .2* /.2*(./ 7/;;/ 37*-!&; !4.*(*3. "&..&-2*3 ./ .2*6 ,(/6 .2* ,&-. .2&. .2* 7(!4-!7;*/, .2*!(-/67/3!.!/4 2&3 <**4 7(*F 3*(=*1 !4 &4-!*4. 603!-&; 4/.&.!/4 8V9 5 ": , 1 /(.2* 1*3-(!" <*(/, .2* *&(.2 (**D 7/*. A2/3* 7(*-!3* -/04.(5 &41 1&.* 2&=* 4/. <**4 &3-*(.&!4*1 !.!3 -*(.&!4 /4;5 .2&. 2* 1!1 4/.;!=* *&(;!*(.2&4 .2* !67*(!&; &>* /, /6* !3 30(=!=!4>A/(D!3 &5 + /(1*3-(!7.!/4 /, .2* G*&(.2 A(!..*4 !4 A*;;".0(4*1 2*0&6*.*(3 &41 ,/041*1 6&!4;5 /4 (&./3.2*4*3 2!3 A&3 60-2 (*&1 &41 .(&43;&.*1 !4./ &.!4 <5 =!*403 &41 (!3-!&4& .2*3* 4&6*39 /.2*;&.*((**D3 2*A&3 .2* >*/>(&72*(- " 2* &4-!*4. (./ 2!3 2/D &7&(&72(&3* &41 .2* -/66*4.&(5 <5 03.&.2!03 .*3.!,5./.2* !4.*(*3.A2!-2!.*0" -!.*1 8 4&4/.2*(&0.2/(/,&>*/>(&72!-&; 7/*6/,/.2* 3&6* 4&6* (9 -"/%$!145343 3/6*.!6*3 !/45303 &6 2*>/1/,;000(!&4.,*(.!;!.5 *37*-!&;;5 &3 1!37;&5*1 <5 .2* =!4*" &41 .2*(*,/(* .2* >/1/, A!4* !3 4&.!=* 7;&-* &--/(1!4> ./.2*030&;.(&1!./4 %A&3 2*<*3 A2*(* 2* A&3 </(4./L*03 <5 ?6?;* .2* 1&0>2.*(/, &1603 *6*;* A&3 1*3.(/5*1 <5 .2* ;!>2.4!4>/, 2*(;/=*(&41 .2* -2!;1 A&3 </(4 &,.*(3!0 6/4.23 L*03 &--/(1!4>;5 3*A*1 !. 07 !4 2!3 .2!>2 .!;; (!7* ,/(<!(.2 &41 .2*4 >&=* !. /=*(./ 4/ .2* 1&0>2.*(/, *6*;* 8 ** & ,.*(2*(1*&.2 *(6*3./!/D.2*</5./.2* 456723/, /04. 53&/(&--/(1!4>.//&4/.2*(=*(3!/4./.2* : /, /1/4& A2/ <(/0>2. 2!6 07 &41 2!1 2!6 !4 &-&=* &A&5,(/6 .2* &4>*(/, *(& . -&44/. <* &3-*(.&!4*1 A2*(* /04. 53& A&3 /(!>!4&;;5 3077/3*1./<* 4;&.*(.!6*3.2* 4&6* A&3 .(&43,*((*1./ 6&45 7;&-*3 A2*(* .2* =!4* A&3 -0;.!=&.*1 4/. /4;5 !4 (**-* <0. !4 3!& 41!& &41 ,(!-& 2*4 >(/A4 07 !/45303 !3 (*7(*3*4.*1 &3 7;&4.!4>.2* =!4* &41 A&41*(!4>.2(/0>2.2* A!1* A/(;1./ 37(*&1 2!3 A/(32!7 &6/4> 6*4 A!.2 2!3 A!4*",;032*1.(&!4&(2!3 40(3*3 &41 /.2*(456723 &.5(3 !;*4 &41 3!6!;&(A//1;&41 1*!.!*3 2/*=*(A*;-/6*3 2!6 D!41;5;!D* -&(;03 !4 ..!-& &41 8 4*03 !4 ;./;!& (*-*!=*3.2* >!,. /, A!4*" <0. .2/3*A2/(*3!3.2!6&(* .*((!<;5 704!32*1 /(A!.2&;; 2!3 &77*&(&4-* /, 5/0.2 &41 3/,.4*33 2* !3 &6!>2.5&41 !((*3!3.!<;*>/1 3.(/4>./A/(D A/41*(3 A2/;* 3*(!*3/, ,&<;*3!3 &77&(*4.;5 <&3*1 07/4.2* .(&1!F .!/4.2&. !4 6&45 7;&-*3 A2*(* & 3*(!!/03 (*;!>!/03 (!.0&; *0!3.*1.2* 1!33/;0.* A/(F 32!7 /, !/45303 6*. A!.2 & =!>/(/03 (*3!3.&4-* & *()) 0 * 9))

2!3 A/(32!7 3//4 7&33*1,(/6 .2* -/4F .!4*4./, (**-*./.2* A!4*">(/A!4>!3;&413 &41 ,;/0(!32*1 7(*"*6!4*4.;5 &. &0/3 *(* !. A&3 &--/(1!4>./ .2* 3./(5 .2&. .2* >/1 A*11*1 (!&14* 4 .2* !3;&413 &,&<;* A&3 -0((*4. .2&. 2*,*;; !4 A!.2 3/6* 5((2*4!&4 7!(&.*3 A2/ .//D 2!6 ./ .2*!(32!7 &41 70. 2!6 !4 -2&!43 0. 2!3 ,*..*(3,*;;/,, .2* 3&!;3 &41 .2* 6&3.A*(* A(*&.2*1 !4 =!4* &41 !=5 .2* >/1 A&3 -2&4>*1 !4./ &;!/4 A2!;* .2* 3*&6*4 .2(/A .2*63*;=*3 6&1;5 !4./ .2* 3*& &41 A*(* .0(4*1 !4./ 1/;72!43 4 ,/(63 &D!4 ./ .2!3 .2* A/(32!7 /, !/45303 7&33*1 !4./ >57. &41 ,&(!4./ 3!& *4-* &(/3* &,&<;* ,/041*1 /4 .2* 3./(5 /, ;*0&41*(3 -&67&!>43 .2&. .2* >/1 7&33*1 =!-./(!/03;5 .2(/0>2 >57. 5(!& &41 41!& &3 ,&(&3 .2* &4>*3 A!.2 2!3 &(65/, !;*4! &.5(3 &41 !437!(*1 A/6*4 .2* /(2 (" -&((5!4> .2*!(A&413 &(: -(/A4*1 A!.2 =!4*3 &41 !=5 &=!4> .203 -/43.(&!4*1 &;; .2* A/(;1./ .2* (*-/>4!.!/4 /, 2!3 1*!.5 &41 2&=!4> A!.2 *(-;*3 &33!3.*1 .2* >/13 !4 .2* ,/(6 /, &;!/4 ./ =!-./(5 !4 .2*!(A&(A!.2 .2* !&4.3 2* A&3 .&D*4 ./ ;5 6703 A2*(* !4 /6*(2* 1/*3 4/ &77*&((/6 ;5 6703 2* 1*3-*413 ./ .2* ;/A*(A/(;1 A2*4-* 2* <(!4>3 2!3 6/.2*(A2/ !3 A/(32!77*1 A!.2 2!6 041*(.2* 4&6* /, 25/!!*8.2* A!;1

/4*9 &3 *./ A&3 A!.2 7/;;/ &41 (. 6!3 ! &41 3!&.!- (**-* A*(* .2* 3-*4* /, .2* A!;1*3.' /(>!*3 !41**1 2(&-* 3**63 ./ <* (/6 2!3 6/.2*(2* !3 -&;;*1 +(: " &* .2* -/04.(5 /, .2*!(<!(.2 4 3!&.!- 4&6* A2!-2 A!.2 /.2*(3 /, 3!6!;&(6*&4F (**-* !. 32/0;1 <* &11*1 .2* A/(32!7 /, !.2 .2* 7/!4.3 ./ & A/(32!7 ,/041*1 07/4 !/45303"L&>(*03 -&6* ./ <* &33/-!&.*1 30-2 &3 (9 =G &41 A!.2 .2* *:0&;;5 A!;1 (!.*3 /, 2*&8 5< ;*9 . . 7/!4.3 ./ & A/(32!7 ,/041*1 07/4 &.53 &41 &<03 /(&<&Q!03 # 1!,,*(*4 -/4-*7.!/4 /, 2!3 4&.0(* $ R 4 (**-* (/7*(.2* -2!*, 4 .2* 65.2 A!.2 A2!-2 A* 2&=* <**4 3*&.3 /, .2*3* A*(* &(4&3303 A!.2 *;72! 2!.2*(./ -/4-*(4*1 .2* >/1 &77*&(3 6&!4;5 &41 !.3 4*!>2</0(2//1 /*/.!& (>/3 &41 !4 .2* -2&(&-.*(&41 30((/041!4>3 /, K/5 &-/4!& &41 !4 &41 (*7(*3*4.*1 &3 *=*>*.&.!/4 !4 A!4.*(A&3 &41 .(!0672 0. &3 .2* >/1 /, .2* *&(.2 (*7(*3*4.*1 &3 .2* ,;!>2./ /, .2* >/1 !4./ *7*-*3!9 &41 (*7(*3*4.*1 &3 & 3/4 /, !/45303 <*;/4>3 ;!D* *(3*72,!4* ./ .2* 2!1!4>, (/6 .2* 3*4.*4-* /, 2!3 *4*6!*3 /(L*03 &41 2!3 1&0>2.*(*(3*72/4* /(3/6*F A/(;1 <*;/A &3 A*;;& &3 ./ .2* A/(;1 &</=* *=*(5 .2!(1 5*&(&,.*(37*41!4>3 .2* !4.*(F 2 2* &3 *6*.*(4 2!3 -2!;1F 2*<&4 /(5/04>*(!/45F 2//1 2* A&3 ./(4 ./ 7!*-*3 <5 .2* !.&43 &. .2* -/66&41 /, .2* K*&;/03 *(& 0. 303 A&3 </(4 2* >(&=* /, !/45303 A&3 =&; !4 .2* ;/ *(A/(;1 2* !3 </(4 &4*A --/(1!4>3 ./ .2* (72!-3./(5 .2*4* 32/A4&. *;72! !4 .2* !46/3. 32(!4* /, .2* <(/0>2. 2*(3/4 3 2*&(. ./ L*03 A2/ >&=* .*67;* /, 7/;;/ *-(*. /,,*(!4>3 A*(* !. ./ *6*;* /(3A&;;/A*1 !. 2!63*;, <(/0(!4>3 6/04.&!4 /, &(4&3303 *3.!=&;3 A2*(*07/4 .2* 2*<&4 /(5/04>*(!/45F /, .2!3 D!41 !4 -*;*<(&.!/4 /, .2* *0.!4-.!/4 303 A&3 </(4 2* >(&=* /, !/45303 A&3 &41 (*30((*-.!/4 /, .2* 1*!.5 A*(* 2*;1 <5 32/A4&. *;72! !4 .2* !46/3. 32(!4* /, .2* *07(*33 .2* *0-*33 /, >(!*, &41 K/5 &. .*67;* /, 7/;;/ *-(*. /,,*(!4>3 A*(* .2* 1*&.2 &41 (*&77*&(&4-* /, .2* >11 <(/0>2. 2! 2!.2*(A2!;* .2* A/6*4 A2/ A*(* A*(*;*<(&.!4>3 .2* ,*&3. A/D* 07 ; " * A*(*;*<(&.!4>3 .2* ,&4 /4 .2* 4*!>2F A*(*;* /, .2* 1*&.2 &41 >!(;3 /4;5 &6!1 .2* 6/04.&!43 A*(*07/4 .2* 2*<&4 /(5/04>*(!/45F A*(* A!;1 *=*4 ./ 3&=&>*(5 &41 .2* A/6*4 A2/ 7*(,/(6*1 .2*6 A*(* 2*4-* D4/A4 <5 .2* *07(*33!=* 4&6*3 /, &--2.* &*4&13 &41 25!&1*3 2*5 A&41*(*1 .2(/0>2 A//13 &41 6/04.&!43 .2*!(,;5!4>3 ;/-D3 -(/A4*1 A!.2 !=5 /(34&D*3 <(&41!32!4>3 A&413 &41 ./(-2*3 ./ .2* 2/;;/A 3/0413 /, .2* 1(06 &41 .2* 32(!;;* 4/.*3 /, .2* ,;0.* A!.2 A!;1 1&4-*3 &41 !43&4* -(!*3 &41 K0<!F ;&.!/4 2* =!-.!63 /, .2* 3&-(!,!-* /0*4 >/&.3 *=*4 ,&A43 &41 (/*3 ,(/6 .2* ,/(*3. A*(* D!;;*1 ./6 !4 7!*-*3 &41 *&.*4 (&A !4 !6!.&.!/4 /, .2* .(*&.6*4. /, L&>(*03 <5 .2* !.&43 2(&-* &41 &-*1/4!& A/(32!77*1 &.2* ;*03!4!&4 653.*(!*3 A!.2 *(3*72/4* &41 *6*.*(041*(.2* 4&6* /, ;&--2/3 &3 <(/.2*(/(<(!1*>(//6 /, *(3*72/4* 0. .2* ..!-5-;* /, 4&.!/4&, ,*3.!=&;3 !4 2/4/0(/, !/45303 (*7(*3*4.3 .2* !1*& /, .2* &4-!*4. &41 3!67;* *;;*4!- A/(32!7 A!.2 !.3 6*((5 03&>*3 *(* !/45303 !3 .2* >/1 A2/ >!=*3 !4-(*&3* &41 ;000(!&4-* ./ =!4*5&(1 &41 .(** /(2* !3 &D!41;5 &41 >*4.;* 7/A*(.*((!<;* /4;5 ./ 2!3 *4*6!*3 &41 </(4 ,/(K/5 &41 <;*33!4>. /6&4D!41 !3 >!,.3 <(!4> 3.(*4>.2 &41 2*&;!4> ./ .2* </15 >;&14*33 &41 ,/(>*.,0;4*33 /, -&(./ .2* 6!41 A2*4-* 2* A&3 -&;;*1 ; / (* .2* ;//3*4*(/, -&(* 2*5 &(* *44/<;!4>

8$9 (/..0.2* (*;!*,/, .2* *-*7.!/4 /. !/4(303 25 -/(!;!3 &.!7&4 /0=(*'&41 (!.!32 0**06 9

!4 .2*!(*,,*-.3 ,/(.2*5 (*:0!(* .*41!4> &41 .203 D**7 6*4 *67;/5*1 !4 1!;!>*4.
;&</0(.2*5 <(!4> .2*6 ./>*.2*(!4 6*((5 6**.!4>3 &41 !437!(* .2*6 ./ 6 03!- &41 7/*.(5 203 !. !3 ./ .2* A/(32!7 /, !/45303 .2&. .2* 1!.25(&6< &41 .2* 30((/041*1 <5 .2* ,&043 /, 2!3 (*.!40* &*4&13 &.5(3 ,!*4! *4.&0(3 *.- /(<5 56723 03*3 07!13 !41**1 !4 .2* >(*&.*3. 7/33!<;* 406<*(&41 =&(!*.5 /, 3!.0&.!/43 # .2* *4>(&=!4>3 3!1*3 .2* =!4* !=5 &41 (/3* .2* 7&4.2*(;!/4 ;540 /0 >/&. &41 1/;72!4 A*(* 3&-(*1 ./ 2!6 !3 030&; 3&-(!,!-*3 A*(* .2* /0 &41 .2* >/&.

4 .&;5 .2* !41!>*4/03 >/1 !<*(A!.2 &,*6!4!4* ;< (&.2!3 3!1* -/((*37/41*1 ./ .2* (**D >/1 , A!4* 03. &3 .2* .&;!&4 (*3 A&3 !1*4.!,!*1 A!.2 *6*.*(3/ .2*3* .A/ 1*!.!*3 A*(* !1*4.!,!*1 A!.2 !/45303 /((T &41 *(3*72/ * A!.2 A2/6 .2*5 A*(* A/(32!77*1 41*(.2*!(4&.!=* 4&6* <0. A!.2 (**D (!.*3 !4 & .*67:* /4 .2* =*4.!4* # " !<*(/(&--203 ;!D* !/45303 2&1 *& -/04.(5 &41 &4 0(<&4 ,*3.!=&; 2* -/44 .(5 ,*3.!=!.!*3 A*(* 2*;1 A!.2 4(*3.(&!4*1 6*((!6*4. &. .2* .!6* /, >(&7*">&.2*(!4> &41 3.(&!4!4> /,, .2* A!4* 2* 0(<&4 ,*3.!=&; 2*;1 !4 /6* /4 .2* $U.2 &(-2 A&3 -&;;*1 !< (&;;& ;1 A/6*4 -(/A4*1 A!.2 !=5 3/;1 -2*&7 -&D*3 # /, 6*&; 2/4*5 &41 /!; &41 <0(4. .2*6 /4 ;!..;* 7&43

8@9 8 /6* &.!/,.69

1(&6& /A* .2*!(/(!>!4 &41 1*=*;/76*4. 4 .2!3 A&5 !/45303 !3 -;/3*;5 (*;&.*1 4/. /4;5 ./ *6*.*(72(/1!.* (/3 .2* (&-*3 &41 .2* 03*3 <0. ./ 7/;;/ <*-&03* 2* !437!(*3 6*4 ./ 7(/72*35

2* 6/3. &4-!*4. (*7(*3*4.&.!/4 /, !/45303 -/43!3.3 /, A//1*4 !6&>*3 A!.2 .2* (&3 .2* 356</; /, >*4*(&.!=* 7/A*(4 A/(D3 /, &(. 2* !3 3/6*.!6*3 (*7(*3*4.*1 &3 .2* &4-!*4. 41!&4 !/45F 303 .2* -/4:0*(/(/, .2* &3. 4 .2!3 -2&(&-.*(2* &77*&(3 &3 !4 .2* &.!-&4 3.&.0* -&;;*1 &(1!4&7&;03 /, 2!>2 3.&.0(* A!.2 &;000(!&4. A*&;.2 /, 2&!(/4 2*&1 &41 -2!4 # ,!> $9 /6*.!6*3 &>&!4 &3 !4 406*(/03 3.&.0*3 A2!-2 2&=* 30(F =!=*1 2* !3 &5/0.2 /, 3/, &41 ,*6!4!4* 2&7* A!.2 &(1(*&65 *07(*33!/4 2!3 ;/4> -;03.*(!4> 2&!(-/4,!4*1 <5 &,!;;*. /(-(/A4 /, =!4* /(!=5 >*4*(&;;5 4&D*1 /("A!.2 &, &A4 /(7&4.2*(3D!4 .2(/A4 ;!>2.;5 /=*(2!6 * !3 *!.2*((*7/3!4> /(;*&4!4> !1;5 <&-D A!.2 .2* 25(&/ >(&7*3 /(& -07 !4 2!3 2&41 8,!> @9 ,.*4 .// 2* !3

8R9 .8] 8 +>Y,(/6 /-*(& / /@C$T &7;*3 ^0.3*..69

,/(.2* 70(-2&3*(3 2* </53 ./D .2*!(1 / /(1 / /4 .2!3 1&5 &41 /,,*(*1 3&-(!,!-* /4 .2* &7!./; !1* <5 3!1* A!.2 .2!3 70<;!- -*;*<(&.!/4 & 3*-(*. A/(32!7 .2* ("< ,/041 !.3 A&5 ./ /(4* &41 !4./.2* A2/;* /, *1$3 2*

(" ' A*(*' -*;*<(&.*1' <5' 6*4' &41' A/6*4' !4' .&;5' /0.3!1*' .2*' -!.!*3' !4' /6*' !4' .2*' 3&-(*1' *4-;/30(*' /,' .;6..;&' /(' *6*;*' 2*5' A*(*' &--/67&4!*1' A!.2' 30-2' 32&6*;*33' *0-*33*3' .2&.' !4' $R?' -' .2*5' A*(*' 70.' 1/A4' A!.2' 0437&(!4>' 3*=*(!.5' <5' &' 1*-(**' /,' .2*' 3*4&.*

!172&4.03' ' (**D' 6&.2*6&.!-!&4' /,' ;*0&41(!&' A2/' ,;/0(!32*1' 7(/<&<;5' &</0.' ?N' ' *' A&3' .2*' &0.2/(' /,' &4' (2' !4'.2!(.**4'<//D3'/,'A2!-2';!..;*'6/(*' .2&4' .2*' ,!(3.' 3!0' 3.!;;' (*6&!4' 2*' <//D' !3' .2*' /4;5' (**D' A/(D' 07/4' &;>*<(&' !/"' 72&4.03' A&3' .2*' 6/3.' -/43!1*(&<;*' &(!.2F 6*.!-!&4' !4' (**D' &4.!:0!.5

;/3-1(;1*3' &, " ' ' (**D' 7253!F -!&4' &41' 6&4' /,' 3-!*4-*' *' ,;/0(!32*1' &</0.' .2*' 6!11;*' /,' .2*' $3.' -*4.0(5' ' &41' A&3' .2*' &0.2/(' /,' &' A/(D' 5' ' '!4',!=*'<//D3' /('4*&(;5'$UNN'5*&(3' .2!3' <//D' A&3' .2*' -2!*,' &0.2/(!.5',('3.0F 1*4.3'/,'</.&45'&41'.2*'3-!*4-*'/,'2*&;!4>' A/' 32/(.' *33&53' /4' 37*-!,!-3' &>&!43.' =*>*.&<;*' &41' &4!6&;' 7/!3/43' & (2' &41'+('&(*'&77*41*1'./'!.'&3' .2*' 3!0.2' &41' 3*=*4.2'<//D3W' <0.' .2*3*' &(*' 7(/<&<;5',(/6'.2*'2&41'/,'&';&.*(' !/3-/(!1*3' /,' ;*0&41(!&' ' A/(D'/4',&6!;5'6*1!-!4*' !3'&;3/'&..(!<0.*1'./'2!6'<0.'!3'4/.'>*40!4* !/3-0(!' ' 3/43' /,' L*03' .2*' 2/(3*'' .&6*(' &3./(' &41' ?;'51*0-*3'8 &.' , -' .2*' 6&3.*('/,'.2*'&(./,'</0!4>' 4' /6*(' .2*5' &(*' (*7(*3*4.*1' &3' .2*' 3/43' /,' *1&' &41' 541&(*/3' &41' -&;;*1' !4' -/43*:0*4-*' 541&(;13*' &3' 15!4>'!4' .2*' .!6*' <*.A**4' .2*' (&7*' /,' *;*4'&41' .2*' (/K&4' &(' &41' &3' <0(!*1' !4' .2*!(' ,&.2*("-1.5' ,.->1&*6/4' 0.' *=*4'041*(' .2*' *&(.2' .2*5' A*(*' &;!=*' /4/0(*1' /,' L*03' .2*5' ;!=*' &41' 1!*' /4' &;.*(4&.*' 1&53' &41' *4K/5*' .2*' 7(*(/>&.!=*3' /,' >/12*&1' 4' .2*' ;&.*(' 3./(5'3/6*.!6*3' </.2' 3/6*.!6*3' /4;5' /;51*0-*3' !3' .2*' 1*3-*41&4.' /,' L*03' # ' ' 2*5' 041*(.&D*' &4' *07*1!.!/4' ./' ..!-3' A2*(*' .2*5' 3*.',(**' .2*!(' 3!3.*(' ; 4&' A2/6' 2*3*03' 2&3' -&((!*1' /,,' 2*5' .&D*' 7&(.' !4' .2*' *07*1!.!/4' /,' .2*' (>/4&0.3' & ' &*) ' &3./(' A2/' 2&1' <**4' </(4' 6/(.&;' ,&;;3' !4' &' -/4.*3.' A!.2' 1&3' &41' 54-*03' .2*' 3/43' /,'.2*!(' 7&.*(4&;' 04-;*' 72 (*03' 2*' ,!>2.' &(/3*' &--/(1!4>' ./' /4*' =*(3!/4'!4' &' :0&((*;' /=*(' 3/6*' -&..;*' A2!-2'.2*5'2&1'-&((!*1'/,,' &--/(1!4>'./'&4F /.2*('!.'A&3'&</0.'.2*'(&7*'/,'.A'1&0>2.*(3' /,' &4/.2*(' 04-;*' *0-!7703' 2/*<*' &41' !;&!(&' A2/' A*(*' <*.(/.2*1'./' .2*' 3/43' /,' 72&(*03' 4' 2!3' <(/.2*(3' 1*&.2' /;5F 1*0-*3' .2*' !66/(.&;' 3/4' /,' L*03' 7(&53' 2!3' ,&.2*(' ./' ;*.' 2!6' 1!*' .//' L*03' 7*(6!.3 2!6' ./' 37*41' &;.*(4&.*;5' /4*' 1&5' &6/4>' .2*' >/13' 2!3' 7**(3' .2*' /.2*(' !4' .2*' ;/A*(' A/(;1'A!.2' 2!3' <*;/=*1'</.2*(' --/(1!4>' ./'&4/.2*(' 3./(5'L*03'!4' (*A&(1',/(' .2*!(' <(/.2*(;5';/=*' 3*.3' .2*' 6' !4' .2*' 3D5' &3' .2*' -/43.*;;&.!/4' /,' .2*' A!43' /(' .2*' 6/(4!4>' &41' *=*4!4>' 3.&(' 2*5'&(*' .2*' !1*&;' .57*3' /,' <(&=*(5' &41' 1*0.*(!.5' !4' ,!>2.' 203' .2*5' &(*' .2*' .0.*;&(5'>/13'/,'A&(;!D*' 5/0.2' /,.*4'32&(!4>'!4'.2*!('-/4.*3.3'&41'2/4/0(*1' &3' .2*' !4=*4./(3' /,' 6!;!.&(5' 1&4-*3' &41' 6*;/1!*3' 2*' &4-!*4.' 3K(6</;' /,' .2*' .A!4' >/13'&.' &-*13*6/4'A&3'.A/'7&(&;;*;'<*&63' K/!4*1'<5'-(/33"7!*-*3'A2!-2' .2*' 7&(.&43' ./!D' A!.2' .2*6' !4./' A&(' 2*5' A*(*' A/(32!77*1' &.' 7&(.&' &41' ;567!&' A!.2' *(&-;*3' &41' /.2*(' 2*(/*3' .' .2*43' .//.2*5'A*(*' 2/4/0(*1' &3' >/13' 041*(' .2*' 4&6*' /,' " ' 8 /(13' (/.*-./(39' .' 3*&' &3' !4'A&(' .2*5';*41'.2*!(' &!1' ./' 6*4' 2*' 3./(6"./33*1' 6&(!4*(' 3**3' .2*' 3!>4' /,' .2*!(' <*4*,!-*4.' 7(*3*4-*' !4' .2*' ;,&6*' &.' .2*' 6&3."2*&1' *' 7(&53' .!41' =/A3' ./' .2*6' .2*' 3&-(!,!-*' /,' &' A2!.*' ;&62' &41' .2*' 3./(6'3//4'-*&3*3' &' ' / ' 2*' (!.*3' /,' 2/37!.&;!.5' &(*' &;3/' 041*(' .2*!(' 7(/.*-.!/4' 2*5'&(*'>*4*(&;;5'(*7(*3*4.*1' A!.2' .2*!(' 2/(3*3']&4.203' &41' 5;; (43' &3' !4' .2*' -*;*<(&.*1'-/;/33&;'>(/07'/,' /4.*' &=&;;/' !4' /6*' 2*!(' -2&(&-.*(!3.!-' *6<;*6'!3'&4'/=&;' 2*;6*.' (/A4*1'A!.2'&3.&(

2*' A/(32!7' /,' &3./(' &41' /;;00' A&3' ,(/6'*&(;5'.!6*3'-0((*4.'&6/4>'.2*' .(!<*3' /,' .&;5' 2*5' *4K/5*1' *37*-!&;' 2/4/0(3' !4' 03-0;06'&41' /6*' 4' .2*' ;&..*(' -!.5' &' -/43!1*(&<;*' .*67;*' A&3' <0!;.' ./' .2*6' 4*&(' .2*' /(06' 8C$C' ' (' !4' >(&.!.01*' ,/(' .2*!(' &77*&(&4-*' &41' &33!3.&4-*' &.' .2*' <&..;*' /,' .2*' &D*' *>!;;03' .A*;=*' 5*&(3' <*,/(*' 4' .2!3' <0!;1!4>' >*4*(&;;5'-&;;*1' 3!67;5' .2*' .*67;*' /,' &3./(' .2*' 3*4&.*' /,.*4' 2*;1' !.3' 3!..!4>3' .' A&3' !4' .2*!(' 2/4/0(' .//.2&.' .2*' 3/;*64'(*=!*A' /,' .2*' /6&4' ' A&3' 2*;1' /4' .2*' $V.,&' 0;5' 2*' 4&6*3' /,' &3./(' &41' /;;00' ;!D*' .2&.' /,' *(-0;*3' A*(*' /,.*4' !4' 03*' &3' ,&6!;!&(' *07;*.!=*3' <0.' .2*' 4&6*' /,' &3./(' A&3' !4=/D*1' <5' A/6*4' /4;5' 2*5' A*(*' A/(' 32!77*1' &3' >/13' /,' .2*' 3*&' 7&(.!-0;&(;5' !4' 3.!&' .2*' 2&(</0(' ./A4' /,' /6*' 2*!(' !6&>*' !3' ./' <*3**4' 3.&67*1' /4' .2*' (*=*(3*' /,' .2*' /;1*3.' /6&4' 3!;=*(' /!43' & ' "

!72!;43' ' 7/*.' /,' .2*' 4*A' ..!-/6*15' &' 4&.!=*' /,' !4 7*' &41' /4.*6B 7/(&(5' /,' *4&41*(' *' !3' 3077/3*1' .' 2&=*' A(!..*4'3/6*' $NN' 7!*-*3' /,' A2!-2' A*' 2&=*' .2*' .!.;*3'&41',(&>6*4.3' /,' &</0.' VN

&.0(403 &!!1'&30<.*((&4*&4'&;.&('/4'.2*' &6F 703' &(.!03' !4' -/6 6/4' A!.2' (/3*(7!4&' 2!3' A&3' /4;5' /7*4*1' A2*4' &3'&.' .2*' 3*-0F ;&(' >&6*3' 3&-(!,!-*3' A*(*' /,,*(*1' ./' </.2' 2*'=!-.!63'/,,*(*1' .203' A*(*'<;&-D'&4!6&;3 !.2K(&6<13' ' 2564' 304>' &.' .2*' ,*3.!=&;3'/,' ;/4'5303'./' .2*' &--/67&4!6*4.' /,' &' ,;0.*' &41' &' 1&4-*' (/041' .2*' &;.&('2*' 2564' -*;*<(&.*1' .2*' 30,,*(!4>3' &41' &-.!/43' /,' .2*' >/1'!4' &'3.5;*' -/((*37/41!4>' ./' .2*' 7&33!/4&.*' -2&(&-.*(' /,' 2!3'A/(32!7' 4' .2*' -/0(3*' /,' .!6*' !.' 1*=*;/7*1' !4./' &' 37*-!&;' -;&33' /,' (**D';5(!-'7/*.(5' .'A&3' !4' /(!4.2' .2&.' !.' ,!(3.'(*-*!=*1' &45.2!4>' ;!D*' &'1*,!4!.*' &(.!3.!-',/(6' &41' .2!3'&.' .2*' 2&413' /,' (!/4' A2/' A&3' .2*(*,/(*'-(*1!.*1' <5' .2*' &4-!*4.3' A!.2' !.3' &-.0&;' !4=*4.!/4' 2*' .(0.2'7(/<&<;5'!3'.2&.' 2*' A&3' .2*',!(3.' A2/' 1!=!1*1' .2*',*3.&;' 3/4>' /,' .2*' -2/(03' !4./' 3.(72*' &41' &4.!3.(72*' &4' &((&4>*F 6*4.' ,/(6' A2!-2' .(&>*15' .//D' !.3' (!3*' # ' * ' !.25(&6<3' A*(*' 304>' &.' .2*43' .A!-*' !4' .2*' 5*&([&.' .2*' >(*&.' !/453!&' !4' .2*' 37(!4>' &41' &.' .2*' *43*&' !4' .2*' <*>!44!4>' /,' A!4.*(' 2*' -2/(03' -/43!3.*1' /,' ,!,.5'7*(3/43' A2/' 3.//1' !4' &' -!(-;*' (/041' .2*' &;.&(' 2*' 1!.25(&6<'A&3' ,0(.2*(' 1*=*;/7*1' <5' &3/3' /,' *(6 4`' .2*' ;5(!-'7/*.'&41' 603!-!&4'A2/';!=*1'&</0.' VNU' ' &.' .2*' -/0(.' /,' .2*' !3!3.(&.;133' 5'3*=*(&;'!44/=&.!/43'!4'603!-'&41'(25.26' *37*-!&;;5'<5'&'3.(/4>*(' &41' 6/(*' -/67;*.*' !43.(06*4.&.!/4' .2!3' &(.!3.'>&=*' !.' >(*&.*(' =&(!*.5'&41' &' 6/(*' 3*-0;&(' -2&(&-.*(" *' &;3/'!4.(/10-*1'.2*7(!Q*'-/4.*3.3',/(.2*'<*3.' 1!.25(&6<' &41' &77&(&4.;5' &</;!32*1' .2*' &4.!3.(/72!-&;' 1!=!3!/4' ,' .2*' 1!.25(&6<3' /,' <!3'707!;' !41&(',(&>6*4.3'/4;52&=*'30(F =!=*1' !.2' &3/3'&41' !41&(' !6 4!1*3' &41' &--25;!1*3' 6&5' <*' 4&6*1' &3'&6/4>' .2*',/(*6/3.'1!.25(&6<!-'7/*.3' /,' .2*' .!6*' .' .2*' 1!.25(&6<!-'-/4.*3.3' .2*'7/*.3'&41' .2*' 1!,,*(*4.' .(!<*3' -/4.*41*1' ,/(' .2*' 7(!Q*' &-2'2&1'.2*!(' -2/(03' <(!;;!&4.;5' ,!..*1' /0.' &.' >(*&.' *07*43*' <5' .2*' (!-2*(' -!.!Q*43' *3!1*3'.2*' 2/4/0(' /,' .2*' =!-./(5' .2*' 7/*.' (*-*!=*1'&'.(!7/1' .2*' -2/(03'&41' .2*' 7*/7;*' A2!-2' 2*' (*7(*3*4.*1'&4'/0',/(' .2*' 3&-(!,!-!&;' ,*&3.' 2*3*' 7*(,/(6&4-*3' A*(*' =*(5'7/70;&(',/(' &';/4>'.!6*' <0.'&3' .2*' 4*A' .*41*4-5' 1*=*;/7*1'!.3*;,' =/!-*3' /,' &0.2/(!.5' 6&1*' .2*63*;=*3' 2*&(1' -/4F 1*64!4>' .2*6' &3' !4=/;=!4>' &' 3*(!/03' 1*F >*4*(&-5'!4' &(.' 41' .2*(*' !3'4/' 1/0<.' .2&.'!4' .2*',/(6'A2!-2'!.' &3306*1'&,.*(' .2*' .!6*' /,' .2*' *;/7/44*3!&4' &(' .2*' 1!.25F (&6<'1!1'=!/;*4-*' ./' .2*' /;1*(' .&3.*' /(*' &41' 6/(*' !.';/3.' .2*' !44*(' 04!.5'&41'<*&0F .!,0;'7(/7/(.!/4'A2!-2'.2&.',**;!4>'(*:0!(*1 ' -/4.!40/03' &41' &8' .0&4>*' /,' (25.26' &41' 6/1*' A&3' &--/67&4!*1' <5' &4' *0.(&F /(1!4&(5' </;14*33' /,' 1!-.!/4' !4' D**7!4>' A!.2'.2*' A!;1'-2&(&-.*(' /,' .2*' -/67/3!.!/4' 4' .2*' 2&413' /,' !4,*(!/(' 7/*.3' .2!3' /,.*4' 7&33*1' !4./' .0(>!1!.5' &41' </6<&3.' !,' 4/.' !4./' 6*(*' 4/43*43*' /;/' 7!*-*3' A*(*' !4F 3*(.*1'./'(*;!*=*' .2*'-2/(03*3'.2*' .*0.' A&3' >(&10&;;5' 30</(1!4&.*1'./' .2*' 603!-' &41' .2*' 1!.25(&6<' A&3' .203' >(&10&;;5' .(&43F ,/(6*1'!4./' &' D!41' /,' /7*(&' 2/0>2' .2*' 30<(*-.3'/,' .2*' 7/*63'2&1';/4>'-*&3*1'./'<*' .&D*4'*0-;03!=*;5',(/6' .2*' -5-;*' /,' !/45'* 3!&-' 65.23' .2*5' A*(*' 4*=*(' /,' -/0(3**4.!(*;5' /0.' /,' 2&(6/45' A!.2' .2*' ;5(!-&;' 37!(!.'/,' .2*'1!.25(&6< 2*(*'A&3' &'=*(5'-/43!1*(&<;*'406<*(' /,' 1!.25(&6<!-' 7/*.3' 2*' <*3.' D4/A4' &(*' `;J4!77;1*3' /,' *;/3' 8&</0.' C$V' ' (' A2/' !3' >*4*(&;;5' 2*;1' (*37/43!<;*' ,/(' .2*' 1*>*4*(&-5'/,'.2*'1!.25(&6<'&41'.2*'*0-*33' /,' !43.(06*4.&;' 603!-' 2!3' 1!3-!7;*' 2!' ;/0 403'/,' 5'.2*(&'A2/'1!*1'!4' RN' !6V' .2 03'/,' !;*.03'A2/'1!*1'!4' VU'&41' 2!3' -/4.*67/(&(!*3' ;5*!103' &41' ;*3.*3' ,'.2*' A2/;*' ;!.*(&.0(*' A*' 7/33*33' 4/.2!4>' <0.',(&>6*4.3 !43' !1;03' 8 .&;!&49' 2*' >/1'/,' /&.23' &41' 7(/.*-./(' /,'.2*' ;&A3'/,' 2/37!.&;!.5'&41' !4.*(4&.!/4&;'1*&;!4>' # ' $ ( ) !='!4&.!/'87(*=!3!/4' /,'.2*' ,0.0(*9 8$9' 4' >*4*(&;' .2*' A/(1'd!3' &77;!*1' ./' &;;' 7(/72*-5' /(' ,/(.*:;!4>' !4' .2*' 3!67;*3.' 3*43*' /,' .2*' A/(1' 6/4>' .2*' /6&43' 7(/72*-5'A&3'<&3*1'4/.'/4' !437!(&.!/4'&3' A!.4' .2*' (**D3'<0./4' .2*' /<3*(=&.!/4' /,' 1*,!4!.*' 3!>43'30-2'&3' .2*' "' 8/(' =!-*9' .2*' 7(/1!>!*3'&41' .2*' &037!-*3' .&D*4'4/.*' /,' <5' .2*' &0>0(3' # ' 2*' 3-!*4-*' /,' .2*' (' 8/(' .2*' ,/(.*:;!4>' /,' =*4.3',/(6'.2*' !437*-.!/4' /,' .2*' -&(-&3*3' /,' 3&-(!,!-!&;' =!-.!63' A&3' &';&.*(' !67/(.&F .!/4',/(6' .(0(!&' 2*' &4-!*4.' /6&43' A*(*' 4/.',&6!;!&(' A!.2' .2*' " ',/(6' /(';/.3' A2!-2' A&3' -/66/4' !4' 6&45' 7&(.3' /,' .&;5' 2*' !<5;;!4*' </D3' .2(*A' 4/' ;!>2.' /4' ,0.0(*' *=*4.3' # ' $ ' * ' /A&(13' .2*' *41' /,' .2*' (*70<;!-&4' 7*(!/1' .2*3-!*4-*3'/,'.2*'&0>0(3'&41'2&(037!-*3';/3.' .2*!(' 3!>4!,!-&4-*' &41' .2*' (**D' /(&-;*3' !4' .2*' =&(!/03',/(63'/,' .2*!(' -(&,.' A!.2' .2*' 2&;13*&4' &3.(/;/>5'-&6*' !4./' =/>0*' &41' -&((!*1' .2*' ,&32!/4' !4' .2*' 3/-!*.5'/,' .2*' 67!(*' #$ ' 0 (8@9' 4' .2*' ;&4>0&>*' /,' /6&4' ;&A' " ' 6*&4.' .2*' ;*>&;' !4:0!(5',/(' 1*-!1!4>' A2/'&6/4>' 6&45' &1=!/-&.*3' 7(/F 7/3!4>'.2*63*;=*3'A&3'.2*',!..*3./'.61*(" .&D*' &' 7(/3*-0.!/4' &41' .2*' 37**-2*3' <5

GA2!-2 .2 I =&(!/03 &1=/-&.*3 .(!*1 ./ 6&D*
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, .2 (&-;* /, L*03"&41 /4* A2/ A&3
A/(32!77*1 2*(* &3 2!3 A!,* !43.*&1 /,
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2* A!;,/, L*03 A&3 &3-*(.&!4*1 ,(/6 .2*
(03.;!4> /, .2* /&D ;*&=*3 <5 .2* 7(!*3.3
A2/6 /6*(-&;;3 &41 .2*!(>(*5F
2*&1*1 7(!*3.*33*3 -&;;*1 , 4
;&.*(.!6*3 (&-;*3 A*(* .&D*4 &. /1/4&
,(/6;/.3 &41 ,(/6.2* (!4>!4> /, &4 !(/4
<&3!4 4 ,(/4./, .2!3 <&3!4 .2*(* 3./!1
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/, .2(** -2&!43 ,(/6 A2!-2 204> 3/6*
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3/041*1 &>&!43. .2* <&3!4 2* /(&-;* /,
/1/4& 2&1 !4 *&(;5 .!6*3 .2* >(*&.*3.
4&6* /, &;;" <0. !4 ;&.*(.!6*3 .2/0>2 !.
4*=*(;/3.!.3 (*70.&.!/4!. A&3 *-;!73B<5
.2&./, *;72! . A&3 3.!;;-/430;.*1
6&!4;5 !41**1 <5 .2* 4*!>2</0(!4> 7/70F
;&.!/43 <0. 3/6*.!6*3 &;3/<5 .2* .&.*3 /,
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!4 .2* @41 -*4.0(5) (&41 1/*3 4/. 3**6
./ 2&=* 1!3&77*&(*1 <*,/(* .2* C.2
1D!6D3;& 2* 4&6* 03*1 &. .2*43
./ 1*4/.* .2* 7(/-*33 /, &3-*(.&!4!4> .2*
-&7&-!.5 /, .2* -!.!Q*43 ,/(.2* *0*(-!3* /,
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;!&<;* ./ 704!32 6*4. =&(5!4> &--/(1!4> ./
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/4&.43 #!) / 6&4 3-2/;&(&41
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&;3/ A(/.* & =&;0&<;* -/66*4.&(5 /4
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" <*!4> ;/3. &41 4/. !4 !.3 /(!>!4&;
,/(6 f * A&3 &;3/ .2* &0.2/(/, /3.
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f B&./3 #+ ! $ -/6F
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A!.2 &' ;!.*(&, (**D .(&43;&.!/4 A2!-2 A&3 4/., ,0;;5 -/67;*.*1 !.2 .2!3 A&3 </041 47 8A2*.2*(<5 /3!.2*03 2!63*;, !3 04 K-*(.&!49 &' 63-*;;&45 /, =*(5 =&(!/03 -/4F .*4.3 <5 &4/.2*(&0.2/(2!3 -/67(!3*3 d$9 &4*-1/.*3 /, .2* 67*(/(&1(!&4 8@9 ,&<;*3 /, 3/7 8 9 &4 !67/(.&4 -2&7.*(/4 K0(!37(01*4-* 8C9 65.2/;/>!-&;' 3./(!*3 ,(/6 ',>!403 8V9 &4 &<(!1>6*4. /, .2* ;!&1 8?9 &4 !4.*(*3.!4> -/;;*-.!/4 /, A/(13 &41 72(&3*3 ,(/4./(1!4&(5 -/4=*(3&.!/4

(&-26&' 8 (**D9 A*!>2.' &41 -/!4_M ?/</;3 _!"B /, &' " /('K'/ / .&;*4. *,/(* .2* .!6* /, /;/4!.' _ ?N >(3 /((&.2*(6/(* .2&4 &' 32!;;!4>' ,.*(/;/4 !. 6&!4.&!4*1 .2* 3&6* =&;0* &3 &A*!>2. <0. &3 &-/!4 8.2* ..!-1(9!. 3&4D ./C R??>(3 &</0.R1 # "

(&-/ 2* 3.&41&(1 /, .2* /6&4 -/2/(. # $)0

(&-/4.!03 # .9 &.!4 7/*. A2/ ;!=*1 &41 7(&-.!3*1 &3 &4 &1=/-&.* &. &(.2&>* ./A&(13 .2* *41 /, .2* V.2 -*4.0(5 * A&3 & 6&4 /, (*&;' 7/*.!- >!,.3 &41 -/4F 3!1*(&<;* (*&1!4> <0. 2!3 3.5;* !3 37/!;*1 <5 (2*./(!-&; *0&>>*(&.!/4 &41 ,&;3* .&3.* !3 30(=!=!4> A/(D3 &(*! 8$9 &' 406<*(/, 32/(. *7!-3 07/4 30<F K*-.3 .&D*4 ,(/6 .2* /;1 65.2/;/>5 &41 3-2//;"(//6 (2*./(!- 8@9 4 &7 " ;/>*.!-7/*6 & & (*33*1 !4 .2* ,/(6 /, &4 *;*>5 ./ 0.2&6041 D!4> /, .2* &41&;3 A2/3* A(&.2 2* 2&1 *0-!.*1 <5 A(!.!4> & 7&4*>5(!- /4 &' ,/(*!>4 7(!4-* 8 9 2(!3.!&4 1!1&-.!-7/*6 !4 .2(** </D3 2!3 !3 &(*&;;5 7/*.!-&; .(*&.6*4./, .2* 3./(5 /, .2* -(*&.!/4

(&6& #d 6 4 .2*43 .2* 7(/10-F .!/4 /, 7;&53 A&3 &3.&.* &,,&!(4/. &7(!=&.* 041*(.&D!4> ., /(6*1 &>(*&.7&(./, .2* (*;!>!/03 ,*3.!=&; /, .2* !/453!& !4 A2!-2 .2* 1(&6& ./D !.3 (!3* & * ! &41 !. A&3 /4;5 &. .2* >(*&.*(!/453!& .2&. 7!*-*3 -/0;1 <* 7*(,/(6*1 10(!4> .2* &0.2/(3 ;!,*.!6* 2* 7*(,/(6&4-*3 ;&3.*1 .2(** 1&53 &41 ./D .2* ,/(6 /, 603!-&; -/4.*3.3 .2* -/67*.!./(3 <*!4> .2(** .(&>!-7/*.3 A!.2 .2*!(.*.(&;/>!*3 &41 ,!=* -/6!-7/*.3 A!.2 /4* 7!*-* *&-2 2* &0.2/(!.5 A2/ 307*(!4.*41*1 .2* A2/;* A&3 .2* &(-2/4 ./ A2/6 .2* 7/*.3 2&1 ./ <(!4> .2*!(7;&53 ,(* (*&1!4> &41 &77;5 ,(* & -2/(03 .2* 7!*-*3 A*(* &--*7.*1 &41 .2* -2/(03 >(&4.*1 .2* -!.!0*43 A2/ A*(* ;!&<;* ,(.2* $(1 041*(.//D &. .2*!(/A4 -/3./7(&-.!3* &41 ,0(4!32 ,(.2*6 /4* -2/(03 *&-2 #) 2* 7/*.3

A2/3* 7;&53 A*(* &--*7.*1 (*-*!=*1 &4 (" ,(/6 .2* 3.&.* 2* 3.&. &;3/ 3077;!*1 .2* (*>0;&(406<*(/, &-./(3 &41 6&1* 7(/=!3!/4, /(.2* 6&!4.*4&4-* /, /(1*(10(!4> .2* 7*(,/(6&4-*3 .2* *41 /, .2* 7*(,/(6&4-* &' -*(.&!4 406<*(/, 7*(3/43 8030&;;5 ,!=*9 A&3 -2/3*4 <5 ;/., (/6&' -/6F 6!..** 4/6!4&.*1 <5 .2* 3*4&.* ./ &A&(1 .2* 7(!Q*3 # 1 " (&41 </041 .2*6 <5 /&.2 ./ >!=* .2*!(K01>6*4. /4 .2* 7;&53 .2* (1 6!1 .2* &-./(3 2* 7/*.A2/ A/4 .2* ,!(3. 7(!Q* A&3 7(*3*4.*1 A!.2 &-(/A4 !4 .2* 7(*3*4-* /, .2* &33*6<;*1 60;.!.01* [.2* 2!>2*3. 1!3.!4-.!/4 .2&. 03*1 . <* -/4,*((*1 /4 &1(&6&.!-&0.2/(&. .2*43 2* =!-./(!/03 (11 &;3/ (*-*!=*,!' &' -(/A4 A!.2 .2* 7*(6!33!/4 ./

8$9' ^ ' ' ' ' ' S ' '

43-(!<*1F 4 ' W (]&.B^ ^ &P E

8 &4/,D& LO '7!'$Z 4/A!4 (!.!32 03*06 9

1*1!-&.* &' =/.!=* /,,*(!4> ./ !/45303 2!3 A&3 >*4*(&;;5 &' .(!7/1 A2!-2 A&3 3*.07*!.2*(!4 .2* .2*&.(*/(!4.2* .*67;* /, .2* 1*!.5 /(!4 .2* H .(**./, (!7/13 I 3/ 4&6*1 ,(/6 .2!3 -03./6 &4 !43-(!7.!/4 <*!4> 70./4!.(*-/(1!4> .2* *=*4.8,!> $9 2* &-./(3 !4 .2* 30--*33,0; 7;&5 (*-*!=*1 7(!Q*3 /, 6/4*5 <*3!1*3 .2* 030&; (" R

(/6 .2* .!6* /, /72/-;*3 .2* &-./(3 !4 &7;&5 A*(* .2(** !4 406<*(2*5 2&1 ./ (*7(*3*4. &;; .2* 7&(.3 .2/3* /, A/6*4 !4-;01*1 A2!-2 !4=/;=*1 .2*!(-2&4>!4> .2*!(-/3.06* 3*=*(&; .!6*3 10(!4> .2* 7*(,/(6&4-* 2* .2(** &-./(3 A*(* 1!3.!4>0!32*1 &3 , 1 " 5 2 1 " &41 + 1 " &--/(1!4> ./ .2* !67/(.&4-* /, .2*!(7&(.3 , .2* 7!*-* (*:0!(*1 &' ,/0(.2 &-./(A2!-2 A&3 3*;1/6 .2* -&3* .2* (1 2&1 ./7(/"

=!1*' /4*' 2*' (1 '2&&' &!3/' (/' 3**' ./' .2*' 7/3!.!/4' &41' *!K0!7 6*4.' /,' .2*' ('

4' *&(;!*(' .!6*3' !.' !3' 7/33!<;*' .2&.' .2*' 7*(3/43' *4>&>*1' !4' .2*' (*7(*3*4.&.!/4' 1!1' 4/.' 6&D*' &' <03!4*33' /,' .2*!(' &(.' <0.' 7*(,/(6*1' >(&.4!./03;5' &3' .2*' 7/*.3' 1/A4' ./' .2*' .!6*' /,' /72/-;*3' &77*&(*1' /4' .2*' 3.&>*' 4.' .2*' 1(&6&.!-' &(.' >(&10&;;5' <*F -&6*' &' 7(/,*33!/4' (*:0!(!4>' -&(*,0;' 7(*F 7&(&.!/4' &41' A!44!4>' >*4*(&;' (*37*-.' ,/(' !.3' 6*6<*(3' &3' &(.!3.3' 2*' -2!*,' (*:0!(*F 6*4.3' ,/(' .2*' 7(/,*33!/4' A*(*' 1!3.!4-.4*33' &41' -/((*-.4*33' /,' 7(/404-!&.!/4' *37*-!&;;5' !4' 1*-;&6&./(5' 7&33&>*3' &41' &4' 040306' 7/A*(' /,' 6*6/(5' &3' .2*(*' A&3' 4/' 7(/67.*(' !4' &' (**D' .2*&.(*' 4' &-./(' 2&1' &;3/' ./' <*' .2/(/0>2;5' .(&!4*1' !4' 3!4>F !4>' 6*;/1(&6&.!-' &-.!/4' 1&4-!4>' &41' 7;&5' /,' >*3.0(*' 2*' ;&..*(' A&3' *37*-!&;;5' 4*-*33&(5' &3' .2*' 03*' /,' 6&3D3' 7(*-;01*1' &;;' 7;&5' /,' ,*&.0(*' 2*' &-./(3' A*(*' &-F -/(1!4>' ./' 3.(!-' (0;*' &33!>4*1' ./' .2*' 7/*.3' <5' ;/.' 5*.' &' 7/*.' >*4*(&;;5' 2&1' 2!3' 37*-!&;' 1 " '/4' A2/3*' 7*-0;!&(' >!,.3' 2*' 2&1' 2!3' * *' !4' A(!.!4>' .2*' 1(&6&.!-' 7!*-*3

2*' .2*4!&4' .(&>*1!*3' <*>&4' ./' <*' D4/A4' &;' /=*(' .2*' *;:*4!-' A/(;1' &3' *&(;5' &3' .2*' .!6*' /,' @ 3-25;03' 2*' ,!(3.' -!.5' /0.3!1*' /,' ..!-&' .2&.' 2&1' &' .2*&.(*' A&3' 5(&-03*' A2*(*' 3-25;43' <(/0>2.' /0.' 3/6*' /,' 2!3' /A4' 7;&53' -*4!-' -/4F .*3.3' 3//4' <*>&4' ./' ,/(6' 7&(.' /,' .2*' (*;!>!/03' ,*3.!=&;3' !4' =&(!/03' (**D' -!.!*3' &41' A*(*' -*;*<(&.*1' !4' 2/4/0(' /,' /.2*(' 1*!.!*3' <*3!1*3' !/45303' .' A&3' &' 2&<!.' /,' ;*0&41*(' .2*' (*&.' ./' -*;*<(&.*' &;6/3.' *=*(5' -/43!1*(&<;*' *=*4.' A!.2' 1(&6&.!-' *02!<!.!/43' &41' &,.*(' 2!6' .2!3' <*-&6*' .2*' (*>0;&(' -03./6' ' -/43!1*(&<;*' !4F -(*&3*' !4' .2*' 406<*(' /,' &-./(3' A&3' /4*' -/43*:0*4-*' /,' .2*' 4*A' 1*6.0!1' 2*' &-./(3' -&;;*1' .2*' 63*;=*3' &(.!3.3' /,' !/45F 303' &41' !4' .2*' ;&(>*(' -!.!*3' .2*5' ,/(6*1' 7*(6&4*4.' 3/-!*.!*3' &J " ' A!.2' 37*-!&;' 7(!=!;*>*3' !4-;01!4>' *0*67.!/4' ,/(6' 6!;!F .&(5' 3*(=!-*' &41' *-0(!.5' !4' 7*(3/4' &41' 7(/7*(.5' 2*3*' -/67&4!*3' 2&1' &' (*>0;&(' /(>&4!Q&.!/4' 7(*3!1*1' /=*(' <5' &' 7(!*3.' /,' .2*!(' 7&.(/4">/1' !/45303' &440&;;5' *;*-.*1' ,/(6' &6/4>' .2*!(' 6*6<*(3' .(*&30(*(' &41' /,,!-*(3' -/67;*.*1' .2*' 3.&,,' .2*' .!6*' /,' .2*' ,*3.!=&;3' .2*' 3/-!*.!*3' 3*4.' /0.' .2*!(' 6*6<*(3' !4' B073' /,' .2(**' &-./(3' A!.2' &' 6&4&>*(' &41' &' ,;0.*"7;&5*(' ./' .2*' 1!,,*(*4.' -!.!*3' 2!3' <03!4*33' A&3' *37*F -!&;;5' ;!=*;5' !4' /4!&' &41' /4' .2*' 00!4*' .2*' 3/-!*.!*3' /,' /3' <*!4>' .2*' 6/3.' 1!3F .!4>0!32*1' 2*' 3&6*' &((&4>*6*4.' A&3 &&/7.*1' !4' .&;5' &41' -/4.!40*1' ./' *0!3.' !41*(.2*' /6&4' 67!(*

2*' 04!=*(3&;' *67;/56*4.' /,' 6&3D3' A&3' &' (*6&(D&<;*' 7*-0;!&(!.5' /,' -/3.06*' # ' 0 ' .' 4&.0(&;;5' *0-;01*1' &;;' 7;&5' /,',*&.0(*<0.' .2*' 63BD3' /((*B/41*1' ./' .2*' >*4*(&;' .57*3' /,' -2&(&-.6' &3' A*;;' &3' ./' .2*' 37*-!&;' .57*3' !41!-&.*1' <5' .2*' (*F :0!(*6*4.3' /,' .2*' 7;&5' *(.&!4' -/4=*4F .!/4&;!.!*3' A*(*' /<3*(=*1' !4' .2*' -/;/0(' /,' .2!' 2&!(' /11*33*3' &41' 5/04>' 7*(3/43' 2&1' ;!>2.' 2&!(' >/13' &41' 7*(3/43' /,' (!7*(' &>*' 1&(D' </A4' &>*1' 7*(3/43' A2!.*' &41' .2*' 1*!.!*3' /,' .2*' ;/=*(*(' A/(;1' <;&-D' 2*' 2*!>2.' /,' .2*' 6&3D3' &41' .2*' /7"D4/.3' &(!*1' A!.2' .2*' &>*' /,' .2*' &-./(3' &41' .2*' 7&(.3' .2*5' .//D' 2*!(' 3.&.0(*' A&3' -/43!1*(&<;5' 2*!>2.*4*1' !4' .(&>*1!*3' <5' .2*' 2!>2' </!.' # ' 9' &41' .2*' 1*,*-.3' !4' 7(/7/(.!/4' -/((*-.*1' <5' 7&1F 1!4>' &41' .2*' 03*' /,' &' D!41' /,' >;/=*3' 2*' -/4=*4.!/4&;!.!*3' /,' -/3.06*' 7(/<&<;5' &3' ,!0*1' <5' 3-25;03' 6&!4.&!4*1' .2*' 6F 3*;=*3' &3' ;/4>' &3' (**D' .(&>*1!*3' A*(*' 7*(,/(6*1' &.' &;;' *4' &41' 6*4/,' 2!>2' (6!D' A/(*' /4' .2*' 3.&>*' &' &(!*>&.*1' /(' (!-2;5' *6</!1*(*1' ;/4>"3;**=*1' (' "!' (*&-2!4>' ./' .2*' ,**.' &41' ,&3.*4*1' A!.2' &' >!(1;*' &3' 2!>2' &3' .2*' <(*&3.' 2*' 077*(' >&(6*4.' A2*.2*(' /(' (: 0B&3' ;/4>' &41' 37;*41!1' &41' /,.*4' *6<(/!F 1*(*1' A!.2' >/;1' ^!4B' &41' :0**43' 2&1' &' 70(7;*' .(&!4' &41' &' A2!.*' "' A!.2' &' 70(7;*' </(1*(' 3//.23&5*(3' &' 4*..*1' 077*(' >&(6*4.' (*&-2!4>' ./' .2*' ,**.' *(3/43' !4' 6!3,/(.04*' *37*-!&;;5' ,0>!.!=*3' &77*&(*1' !4' 3/!;*1' >&(6*4.3' /,' >(*5' >(**4' /(' <;0*' <;&-D' A&3' .2*' 356</;' /,' 6/0(4!4>' &41' 3/' /4 4' .2*' &.5(!-' (&6&' .2*' -/3.06*3' /,' .2*' 2*(/!-' -2&(&-.*(3' (*3*6<;*1' !4' &;' *3F 3*4.!&;3' A2&.' .2*5' A/(*' !4' .2*' .(&>*1!*3' &;.2/0>2' ./' 30!.' .2*' >(*&.(' ;!=*;!4*33' /,' .2*' &-.!/4' .2*' (' "' A&3' 32/(.*(' &41' .2*' </!.' ;/A*(' 4' .2*' ;1' /6*15' .2*' -/3F .06*3' A*(*' .&D*4' &3' 4*&(;5' &3' 7/33!<;*' ,(/6' &-.0&;' ;!,*' <0.' !4' .2*' !11;*' &41' *A' /6*15' .2*5' A*(*' -/4=*4.!/4&;' 2*' 6*4' A/(*' &' A2!.*' -/&.' 5/0.23' &' 70(7;*' /4*' 3;&=*3' &' 6/.;*5' A!.2' 6&4.;*' ./' 6&.-2' //D3' &4' 04<;*&-2*1' 1/0<;*' 6&4.;*' 7*&3&4.3' &' ,0(' /(' 32&>>5' -/&.' A!.2' A&;;*.' &41' 3.&,,' 7&41*(3' &' -/;/0(*1' -/&.' &41' 6/.;*5' /=*(">&(6*4.' ;1' A/6*4' &77*&(*1' !4' 3D5"<;0*' /(' 1&(D' 5*;;/A' 7(!*3.*33*3' &41' 6&!1*43' !4' A2!.*' -/0(.*/03' !4' 6/.;*5' -/;/0(3' &41' 3/' /4' 2*' 6*6<*(3' /,' .2*' -2/(03' A*(*' 6&3D*1' &41' 1(*33*1' !4' &' -/3F .06*' -/((*37/41!4>' ./' .2*' 7&(.' &33!>4*1' .2*6' <5' .2*' 7/*.' 8 4' .2*!(' 1(*33' !4' .2*

&.5(!-' (&6&' ' 5 !/' & ' 2*' -2/(03' /,' .2*' -/6*15'-&(!-&.0(*1' .2*' /(1!F 4&(5'1(*33' /,'.2*'.(&>!-'-2/(03' /6*.!6*3' .2*5' (*7(*3*4.*1'&4!6&;3'&3' !4' .2*' (/>3' &41' !(13' /,' (!3./72&4*3' 4' .2*' (/>3' .2*5'A/(*' .!>2.' 1(*33*3' /,',(/>"-/;/0('&41' 6&3D3' A!.2' &' 6/0.2' A!1*' /7*4" !4' .2*' !(13' ;&(>*' <*&D3' <04-2*3' /,' ,*&.2*(3' -/6<3'&41'3/'/4'./'!6!.&.*'7&(.!-0;&('<!(13' # ' 7;&.*' !4' . " ' ' " ' ' =/;' !!' 7;&.*' 0!=' ' -/7!*1'!4' &!>2 3' ' +('7' @?U 9

.2*' 6&4&>*(' (*-*!=*1' 4/' -/67*43&.!/4' 0.'&,.*(' 7*(,/(6&4-*' .2*' 7!*-*' <*-&6*' 2!3' 7(/7*(.5'./' <*' 03*1'&.',0.0(*' (*7(*3*4.&F .!/43',/(' 2!3' /A4' 7(/,!.' 4' .2*' .!6*' /,' !-*(/'A2*4'!.'A&3',&32!/4&<;*' ./' (*=!=*' .2*' A/(D3' /,' /;1*(' 6&3.*(3' .2*' 3*;*-.!/4' /,' 30!.&<;*' 7!*-*3'A&3'>*4*(&;;5';*,.'./' .2*' 1!(*-./(' 2*' /6&43' 1!1' 4/.' ;!D*' .2*' (**D3' ;!6!.' .2*' 406<*(' /,' &-./(3' ./' .2(**' <0.' =&(!*1' !.' &--/(1!4>' ./' .2*' (*F :0!(*6*4.3' /,' .2*' 7;&5' /6*43' 7&(.3' A*(*' /(!>!4&;;5'7;&5*1'<5'6*4'&3'!4' (**-*

8@9 7 "' (&6&.!-' 7*(,/(6&4-*3' !4' /6*' &3' !4' (**-*' ,/(6*1' &' 7&(.' /,' .2*' 030&;' 70<;!-' ,*3.!=&;3'A2*.2*(' *0-*7.!/4&;' /(' /(1!4&(5'&41' A*(*' 3*.' /4' ,//.'<5' .2*' 3*1';!*3'&41'7(&*./(3' 8X **@ & ' '7(!=&.*' !41!=!10&;' 2/A*=*(' !,' 2*' A*(*' >!=!4>' &' ,*3.!=&;' /(' -*;*<(&.!4>' &' ,04*(&;'A/0;1' 6 *' .2*&.(!-&;'(*7(*3*4.&.!/43'/4'2!3'/A4'&--/04.' 2*' >!=*(' /,' .2*' ,*3.!=&;' 2!(*1' &' ./(07*' /,' 7;&5*(3' #1 - ' .2*' 1!(*-./(' /,' A2!-2' & " '1 1 '</0>2.'&'7;&5',(/6'&7/*.' &.'2!3'/A4'(!3D' ,'.2*'7!*-*"A&3'&',&!;0(*

/6*4'&77*&(*1',!(3.'!4' 6!6*3' &41' 4/.' .!;;' =*(5';&.*' .!6*3' !4' -/6*1!*3' 2*' &-./(3' A*(*' 030&;;5',(**16*4' /(' 3;&=*3' A2/6' .2*!(' 6&3.*(3' *4.' ./' <*' *10-&.*1' &41' .2*4' 2!(*1' .2*6' /0.' ./' .2*' 1!(*-./(3' /,' .2*' .2*&.(*3' 2*' 7(/,*33!/4' A&3' .*-24!-&;;5'<(&41*1'A!.2' " '4/(' A&3' !.3';*>&;' 7/3!.!/4' *=*(' *33*4.!&;;5' &;.*(*1' 2*' 3/-!&;' 3.&41!4>' /,' &-./(3' A&3' 2/A*=*(' !67(/=*1'.2(/0>2' .2' !4,;0*4-*' /,' (**D' *10-&.!/4" &41' >!,.*1' &(.!3.3' ;!D*' .2*' G-/6*1!&4' /3-!03' &41' K 3/703' .2*' .(&"

>*1!&4 !4 !-*(/ 3 .!6* *4K/5*1 .2* ,(!*41F
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/,',!4&;'1*-!3!/4'!4'70<;!-'&,,&!(3
8$9' .' .2*43' *=*(5'-!.!Q*4'!4'7/33*3F
3!/4',',0;;'-!=!-' (!>2.3'A&3'*4.!.;*1'./'
.&D*'7&(.'!4'!.',(/6'2!3'.A*4.!*.2'5*&('
07A&(13' 4' *&(;5'.!6*3'/4*' '
6*.' (*>0;&(;5'/4-*'&'5*&('!4'*&-2',/'
.2*' .*4'7(5.&4!*3'/,' .2*' 3*4&.*' # '
?) ' !4';&.*(' .!6*3',/0(' 6&D!4>',/(.5'
&440&;;5' 7*-!&;' &33*6<;!*3' 6!>2.'&;3/'
<*'-&;;*1'/4'/--&3!/4' 2*' 7;&-*'/,'6**.F
!4>'A&3'!4'*&(;5'.!6*3'.2*' 6&(D*."7;&-*'
!4';&.*(' .!6*3'&'37*-!&;';/-&;!.5'-&;;*1'.2*'
450" <0.'>*4*(&;;5'.2*'.2*&.(*'&,.*('&'
7*(6&4*4.'.2*&.(*'2&1'<**4'*(*-.*1' /'
306 6/4'.2*'&33*6<;5'A&3'.2*'10.5'/,'.2*'
(5.4*3'A2/'1!1'3/'<5'70<;!32!4>'.2*'
4/.!-*'/,'7(/-**1!4>3' 2*(*'A&3'&'37*-!&;'
&0.2/(!.5'&</&(1'/,'3!0';-('83/'-&;;*19'
A!.2'.2!(.5'&33!3.&4.3'A2/3*'<03!4*33'!.'
A&3'./'D**7'04&0.2/(!Q*1'7*(3/43'/0.'/,'.2*'
&33*6<;5' 2*' 6*6<*(3'/4'.2*!(' &77*&(F
&4-*'A*(*'*&-2'7(*3*4.*1'A!.2'&'.!-D*.'/4'
02!<!.!4>'A2!-2'&,.(' .2*' -/4-;03!/4'/,'
.2*' 6**.!4>'.2*5'(*-*!=*1'&'7&56*4.'/,'&4

'8&</0.'; X,9' !;;' ;&.*(' .!6*3'/,'.2(*&
/</;3' ,.*(' &'3/;*64'7(&5*('&41'3&-(!,!-*'
.2*'7(*3!1*4.'#9 '-/6604!-&.*1'./'
.2*'6**.!4>'.2*'30<'*-.3'/,'1!3-033!/4' ,'
.2*(*' A*(*' &' 7(*=!/03' (*3/;0.!/4'/,' .2*'
3*4&.*' ,/(' 1!3-033!/4'2*' 70.'.2*' :0*3.!/4'
A2*.2*(' .2*'7*/7;*'A/0;1'&1/7.'!.'/(' 7(/F
-**1'./'1!3-033'!.' 4' .2*'1*<&.*3'*=*(5'
-!.!Q*4'2&1' .2*' (!>2./,' &11(*33!4>' .2*'
6**.!4>'<0.'4/'/4*-0;1'37*&D'6/(*'.2&4'
/4-*' *,/(*'1/!4>'3/'2*'70.'&'-(/A4/,'
65(.;*'/4'2!3'2*&1' 2*'7(*3!1*4.'8<0.'4/'
/4*';3*9' 2&1' .2*' (!>2.'/,'!4.*((07.!4>'&'
37*&D*(' ,' 2!3'<*2&=!/0('A*(*'043**6;5'
.2*'7(*3!1*4.'-/0;1'-0.32/(.'2!3'2&(&4>0*'
07;' 2!6' ,(/6' .2*' &41',(/6'
.2*'6**.!4>'&41'!4,;!-.'07/4'2!6'&',!4*'4/.'
*0-**1!4>'VNN'1(&-263*'8+$?'$R3' &3*3'
/,'>(&=*(' 6!3-/410-.'2&1'./'<*' (*,*((*1'
./'.2*'3*4&.*'/(' &33*6<;5',/(' 704!326*4.'
45'-!.!Q*4'-/0;1'6/=*'&4'&6*416*4.*'/('
-/04.*("7(/7/3&;' A2!-2'2*' 2&41*1'!4'!4'
A!!.!4>'./'.2*'7(*3!1!4>', :" :' 2*a
7(*3!1*4.'2&1'./'1*-!1*'A2*.2*(' !.'32/0;1'
<*'70.'./'.2*'=/.*' 2!3'-/0;1'<*'7(*=*4.*1'
4/.'/4;5'<5'.2*'6*(*'1*-;&(&.!/4'/,'.2*'
7(*3!1*4.'.2&.'!.'A&3'!;;*>&;'<0.'<5'&45'
/4*'7(*3*4.'A2/'</041'2!63*;','/4'/&.2*'./'
7(/3*-0.*'.2*'7(/7/3*(',/(' !;;*>&;!.5' 2*'
37*&D*(' 6!>2.'&;3/'(*.(&-.' 2!3' 7(/7/3&;'
2*'=/.*3'A*(*'.&D*4'<5'32/A'/,'2&413'
#(/ /") ' 2*'=/.!4>'A&3'4*=*('3*-(*.'
04;*33'.2*' :0*3.!/4'&,,*-.*1'3/6*'/4*'3'
7*(3/4&;'!4.*(*3.'&3'!4'.2*'-&3*'/,'/3.(&F
-!36' 4'30-2'-&3*3'&'6&K/(!.5'/,'&.';*&3.
?NNN'=/.*3'A&3'4*-*33&(5' 2*'(*3/;0.!/4'
(' A&3'&44/04-*1'<5'.2*'7(*3!F
1*4.'&41'&(*-/(1'/,'!.'.&D*4'A2!-2'A&3'
1*7/3!.*1'!4'.2*'&(-2!=*3'&41'/,.*4'70<;!-;5'
*02!<!.*1'/4'.&<;*3'/,'3./4*'/(' <(/4Q*'
,.*(' .2*'-/4-;03!/4'/,'<03!4*33'.2*'7(*3!F
1*4.'.2(/0>2'2!3'2*(&;1'1!36!33*1'.2*'
7*/7;*' ,'4/',!4&;'(*30;.'A&3'&((!=*1'&.'
/(' !,' .2*'<03!4*33'A&3'!4.*((07.*1'<5'&'
3!>4',(/6'2*&=*4'30-2'&3'&"3./(6'/(' &

A*(*' &..&s nnn' nnBB ,-!-0;&(' 3-2//;' <0.
6&1*' &' 3*;*-.!/4' /,' ,&=/0(!.*' 1/>6&3' ,(/6'
.2*' .*4*.3' /,' .2*' 1!,,*(*4.' 3*-.3
-;/>0*' 8 (' .9 1 ' ' 3*;*-.*1' 7!*-*'
/,' A(!.!4>' (/7*(;5' &' 7/*6' .&D*4' /0.' /,'
&' ;&(>*(' -/:;*-.!/4' &41' 3/' &77;!*1' 041*('
.2*' /6&4' 67!(*' ./' &' 32/(.' 7/*6' &3' &4'
!15;' /(' 3&.!(*' 2*' .*(6' A&3' 37*-!&;;5'
&77;!*1' ./' .2*' 7&3./(&;' 7/*63' /,' *(>!;' &41'
&;70(4;03' !-2;03
1!-.06' 2*' /6&4' .*(6' ,/(' &45'
A(!..*4' &44/04-*6*4.' 6&1*' <5' &' 6&>!3F
.(&.*' ./' .2*' 7*/7;*' 4' A&3' 3/6*F
.!6*3' .*67/(&(5' /4;5' &3' 1' .2*' &44/04-*F
6*4.3' /,' .2*' 70<;!-' &33*6<;!*3' /(' >&6*3'
3/6*.!6*3' !.' -/4.&!4*1' 7*(6&4*4.' *4&-.F
6*4.3' &3' ,/(' !43.&4-*' .2*' /,' .2*'
-*43/(3' &>&!43.' ;000(5' 2*' 4&6*' A&3'
37-!&;;5' &77;!*1' ./' .2*' 7(/-;&6&.!/43'
!330*1' <5'K01!-&;' ,04-.!/4&(!*3' /4' &330 6!4>'
/,,!-*' &41' 3.&.!4>' .2*' 7(!4-!7;*3' /(' (0;*3'
A2!-2' .2*5' !4.*41*1' ./' ,/;;/A' !4' .2*'
0(-!3*' /,' .2*!(' &0.2/(!.5' 2*' '
/,' .2*' 3*1!;*3' (*;&.!=*' ./' .2*' 6&(D*.3'
<*;/4>' ./' .2!3' -;&33' 4*' D!41' /,'
A&3' 37*-!&;;5' !67/(.&4.' !4' !.3' <*&(!4>'
07/4' /6&4' ;&A' .2*' /,' .2*'
7(&*./(' 4' 2!3' .2*' 7(&*./(' ;&!1'
1/A4' .2*' (0;*3' A2!-2' 2*' A/0;1' /<3*(=*' !4'
&((&4>!4>' .2*' 7(/-**1!4>3' /,' .2*' (*>0;&('
-/0(.3' &41' /,' 2!3' =/;04.&(5'K0(!31!-.!/4'
&41' !4' 1*-!1!4>' -&3*3' A2!-2' 1!1' 4/.'
&77*&(' ./' <*' -/=*(*1' <5' .2*' A(!..*4' *4&-.F
6*4.3' /,' .2*' A*;=*' &<;*3' /(' ;&.*('
;*>!3;&.!/4' 2*3*' A(!..*4' /4' A//1'
3./4*' /(' <(/4Q*' A*(*' !4' *&(;5' .!6*3' 70<F
;!32*1' /4;5' &3' /--&3!/4' (*-f0!(*1' <0.' !4'
;&.*(' .!6*3' .2*' 7(3*./(3' (*>0;&(;5' 7(/60;F
>&.*1' .2*6' /4' *4.*(!4>' 07/4' .2*!(' /,,!-*'
2*5'7(*=*4.*1' .2*' ,/33!;!Q&.!/4' /,' .2*' ;&A'
&41' &;;/A*1' .2*' *4&-.6*4.3' /,' .2*' A*;=*'
&<;*3' ./' &1&7.' .2*63*;=*3' !4' 4&.0(&;'
1*=*;/76*4.' ./' .2*' -2&4>!4>' -!(-063.&4-*3'
/,' -!=!-' ;!,*' &41' !4.*(-/0(3*' .' !3' .(0*'
.2&.' .2*' 2&1' 4/' ,/(-*' <*5/41' .2*'
7(&*./(3' 5*&(' /,' /,,!-*' <0.' &3' *=*(5' 4*A'
7(&*./(' /<3*(=*1' A2&.' A&3' ,/041' !4' .2*'
' /,' 2!3' 7(*1*-*33/(3' &' 7*(6&4*4.'
40-;*03' /,' -/43.&4.;5'(*7*&.*1'(0;*3'-&;;*1'
' 8/(' -/4.!40/03' *1!-.9'
A&3' ,/(6*1' !4' -/0(3*' /,' .!6*' 2!3' <*F
-&6*' ,/(' .2*' ;&.*(' 7*(!/1' &' (*-/>4!3*1'
3/0(-*' /,' -03./6&(5'%&A' 3!1*' <5' 3!1*'
A!.2' .2*' ' 1' 7(/7*(' .';*4>.2' 041*('
&1(!&4' .2*' 6&33' /,' A&3' (*10-*1' ./'
353.*6' <5' &;=!03' 0;!&403' &41' (*-*!=*1'
.2*' ,/(-*' /,' ;&A' &.' .2*' !67*(!&;' -/66&41'
2!3' </15' /,' ;&A' !4-;01*1' .2*' &--*7.*1'
' /,' .2*' ' (" ' &41' .2*' /.2*(
7(3*./(3' &1 6!4!3.*(!4>' ;&A' !4' .4*' 7(/=!4-*3'
/,' .2*' 7(/-/430;3' 7(/7(&*./(3' &41' 3*1!;*3'
.' A&3' -&;;*1' ' ' ' /(' ' " ? ' .2*' ;&..*('
<*-&03*' !.3' &0.2/(3' 2&1' 2*;1' 70<;!-' /,,!-*3'
#(" ' 4' .2!3' -/;;*-.!/4' .2*' $ '
. ' /,' 03.!4!&4' !3' !4' >(*&.' 7&(.',/041*1'
2*' *67*(/(' &41' !67*(!&;' /,,!-!&;3' &3'
' 3' &41' ' '
2&1' &;3/' .2*' (!>2.' /,' !330!4>'
10-&.!/4' 8$9' 6 ' 2*' /(!&43' /,'
(*.*' &41' 7&(.&' ,/;;/A*1' &' 7*-0;!&(' ;!4*'
!4' .2*' 6&..*(' /,' *10-&.!/4' 2(/0>2/0.'
(**-*'>*4*(&;;5'.2*'3.&.*' ;*,.'!.'./'7(!=&.*'
,,/(.<0.'!4' 7&(.&' &41' (*.*' !.' -&6*'
041*(' .2*' 1!(*-.' 307*(=!3!/4' /,' .2*' -/6F
604!.5' .' 7&(.&' &3' 3//4' &3' &-2!;1' A&3'
</(4' &' -/66!33!/4' /,' .2*' *;1*(3' /,'!.3'.(!<*'
2&1' ./' 1*-!1*' A2*.2*(' !.' 32/0;1' <*' (*&(*1'
/(' *07/3*1' ,'!.' A&3' A*&D;5' /(' 1*,/(6*1'
!.' A&3' *07/3*1' !4' &' 1*,!;*' /,' /04.' &5'"
>*.03' !;;' 2!3' 3*=*4.2' 5*&(' &' </5' A&3'
;*,.' ./' .2*' -&(*' /,' 2!3' 7&(*4.3' ,.*(' .2!3'
.2*' , " '/(',!-*'(7(*3!1!4>/=*(.2*'
A2/;*' 1*7&(.6*4.' /,' *10-&.!/4' &33!>4*1'
2!6' ./' &' 1!=!3!/4' /,' -2!;1(*4' /,' .2*' 3&6*'
&>*' -&;;*1' &' *=*(&;' /,' 30-2'
./>*.2*(',/(6*1'&'.(//7*/(' &-2'
A&3' 307*(!4.*41*1'<5'&' 1' *&-2'
<5' &4' ' /.2' .2*3*' /,,!-*(3' A*(*'
;-.*1',(/6'&6/4>.2*' 6/3.' 7(/6!3!4>' /,'
.2*' >(/A4' 07' 5/0.23' &41' A*(*' </041' ./'
!43.(0-.' .2*' -2!;1(*4' !4' .2*!(' *0*(-!3*3'
2*' *0*(-!3*3' A*(*' -&;-0;&.*1' ./' 30!.' .2*'
=&(!/03'&>*3' /,' .2*' -2!;1(*4'&41'-/43!3.*1'
!4' (044!4>' ;*&7!4>' A(*3.;!4>' .2(/A!4>'
.2*' 37*&(' &41' 1!3-03' &3' A*;;' &3' !4' &' 406F
<*(' /,' 1&4-*3' 7&(.!-0;&(;5' .2*' A&(' 1&4-*'
/(',: (' # ' * ((' 2*'
1&4-!4>' A&3' 041*(' .2*' -/43.&4.' 307*(!4F
.*41*4-*' /,' .2*' , " ' &41' ,!=*'
: ' 041*(' 2!6' 2*' 1!3-!7;!4*' A&3'
>*4*(&;;5' 1!(*-.*1' ./' 3.(*4>.2*4!4>' /('
2&(1*4!4>'.2*'</15' 2*'</53'A*4.'<&(*F
,//.' &41' <&(*2*&1*1' A!.2' 2&!(' -0.'32/(.'
&41' !4' ;!>2.' -;/.2!4>' (/6'.2*!(' .A*;.2'
5*&(' .2*5' A/(*' 4/.2!4>' <0.' &4' 077*('
>&(6*4.' A2!-2' 2&1' ./' ;&3.' .2*' A2/;*'
5*&(' 2*5'3;*7.' !4' &' -/66/4' (//6'A!.2F
/0.' &' (//,' /4n&' ;!..*(' /,' 2&5' /(' 3.(&A'
&41',(/6'.2*!(',!,.**4.2' 5*&(' /4' (032*3' /('
(**13' 2*!(',//1' A&3' *0.(*6*;5' 3!67;*'
&41'4/.'30,,!-!*4.'./'3&.!3,5'204>*(' '</5'
A2/' 1!1' 4/.' A&4.' ./' <*' 204>(5' 2&1' ./'
3.*&;*!,'2*'1!1.2!3'-;*=*(;5'2*'A&3'7(&!3*1'
&41'704!32*1'!,'1*.*-.*1' =*(5'5*&('.2*'
</53'2&1'./'041*(>/'&',;/>>!4>'&.'.2*'&;.&('
/,' (.*6!3' (.2!&' &3' &.*3.' /,' .2*!(' 7/A*('
./'*410(*'</1!;5'7&!4' 2*5'A*(*'A2!77*1

.!;;' .2*' <;//1' ,;/A*1 ' &41' 1** 6 *1' !.' &' 1!3'' G>(&-*' ./' 32*A' &45' 3!>4' /,' 30,,*(!4>' *&1F !4>' &41' A(!.!4>' A*(*' ;*,.' ./' 7(!=&.*' !4F 3.(0-./(3'' <0.' 6 03!-' &41' -2/(&;' 3!4>!4>' !4' 7&(.!-0;&(' ,/(6*1' &' 7&(.' /,' .2*' (*>0;&(' 1!3-!7;!4*' 2*' 041*(3.&41!4>' A&3' &3F 30 6*1' ./' <*' ,/(6*1' <5' 1&!;5' ;!,*' !4' 70<;!-' &41' .2*' -/4=*(3&.!/4' /,' .2*' 6*4' ./' A2!-2' .2*' </53' A*(*' &16!..*1' =*(5' 7&(.&4' </5' ;//D*1' 07' ./' 2!3'3*4!/(3' &3' 2!3' !43.(0-F ./(3' &41' 307*(!/(3' .2*' -/43*:0*4-*' <*!4>' .2&.' !4' 7&(.&' .2*' 5/04>' <*2&=*1' ./' .2*!(' *;1*(3' A!.2' 6/(*' 6/1*3.5' &41' (*37*-.' .2&4' !4' &45' /.2*(' (**D' -!.5' *3!1*3' .2!3' *=*(5' 6&4' -2/3*' &' </5' /(' 5/0.2' &3' 2!3' ,&=/0(!.*' *' A&3' </041' ./' 3*.' .2*' </5' &4' *0&67;*' /,' &;;' 6&4;5' *0-*;;*4-*' &41' A&3' (*>&(1*1' &3' (*37/43!<;*' &41' 704!32&<;*' ,/('2!3'1*;!4:0*4-!*3' 2!3'70<;!-'*10-&.!/4' &41' .2*' 7*(,/(6&4-*' /,' .2*' (*>0;&(' *0/(F -!3*3' 041*(' .2*' 307*(!4.*41*4-*' /,' .2*' :H ';&3.*1' .!;;' .2*' .2!(.!*.2' 5*&(' 4' .2*' *!>2.**4.2'5*&(' .2*' </5' 7&33*1' !4./' .2*' -;&33' /,' 5/0.23' (/6' .2*' .A*4.!*.2' 5*&(' A2*4' 6!;!.&(5' 3*(=!-*' 7(/7*(' <*>&4' ./' .2*' .2!(.!*.2' .2*' 5/0.2' A&3' -&;;*1' &4' "' *' A&3' 4/.' (*>&(1*1' &3' &' 6&4' /(' &;;/A*1' ./' &..*41' .2*' 70<;!-' &33*6<;5' .!;;' 2!3' .2!(.!*.2' 5*&(

2*' >!(;3' 2&1' &4' *10-&.!/4' !4' 6 03!-' &41' >5 6 4&3.!-' *10/&.!/4' 3!6!;&(' ./' .2&.' /,' 7&(.&' 0.' .2*' 70<;!-' .(&!4!4>' 1!1' 4/.' <*>!4' .!;;' .2*' 3*=*4F .**4.2'5*&(' "=B*4' .2*' </53' /,' .2*' 3&6*' &>*' K/!4*1' .2*63*;=*3',(**;5'!4./'1!=!3!/43' -&;;*1' 1 '*&-2';*1'<5'3/6*'4/<;*' 5/0.2' A2/3*' ,&.2*(' A&3' -&;;*1' 1 ' &41' 041*(.//D' .2*' 307*(=!3!/4' /,' .2*' >&6*3' &41' *0*(-!3*3' .'!3'7(/<&<;*' .2&.' .2*' 5/04>' 6*4'(*6&!4*1' !4'.2!3'/(>&4!Q&.!/4'.!;;'.2*!(' .A*4.5"3*=*4.2' 5*&(' A2*4'.2*';&A'-/67*;;*1'.2*6'./' 6&((5 ' .2*43' &3' !4' (**-*' >*4*(&;;5' .2*' ,&.2*(' 1*-!1*1' A2*.2*(' .2*' -2!;1' 32/0;1'<*' (*&(*1' /(' *07/3*1' 2*' ;&..*(' &;.*(4&.!=*' 3**63' ./' 2&=*' <**4' 4/.' 3*;1/6' &1/7.*1' *37*-!&;;5' A2*4' .2*' -2!;1' A&3' &' >!(;' ,' .2*' *10-&.!/4' /,' &' -2!;1' A&3' /4-*' ,&!(;5' -/66*4-*1' .2*' 7&(*4.3' 2&1' 4/' 7/A*(' ./' 70.' !.' /0.' /,' .2*' A&5' .2*' <!(.2' /,' &' </5' .2*' 1//(' /,' .2*' 2/03*' - !1%&1/(4*1' A!.2 &'<(&4-2' /,' /;!=*' &.' .2*' <!(.2' /,' &' >!(;' A!.2' A//;' 4' .2*,!,.2' /('3*=*4.2'1&5'&,.*(' <!(.2' .2*' -2!;1' 041*(A*4.' &' (*;!>!/03' 1*1!-&.!/4' &.' .2*',*3.!=&;' /,' .2*' D '8H' (04F 4!4>' (/041'I9% .' A& ' ./0-2*1' A!.2' !43.(0F 6*4.3' /,' 70(!,!-&.!/4' &41' -&((!*1' 3*=*(&;' .!6*3' (/041' .2*' <0(4!4>' 2*&(.2' 4' .2*' .*4.2'1&5'-&6*' .2*',*3.!=&;' /,' 4&6!4>' .2*' -2!;1' A!.2' 3&-(!,!-*' &41' *4.*(.&!46*4.' A2*4' .2*' ,&.2*(' &-D4/A;*1>*1' !.' &3' ;*>!F .!6&.*' /' .2*' *41' /,' .2*' 3!0.2' 5*&(' .2*' </53' &41' >!(;3' A*(*' <(/0>2.' 07' ./>*.2*(' 041*(' ,*6&;*' 307*(=!3!/4' <0.' &,.*(' .2!3' .2*' 3*0*3' A*(*' *10-&.*1' &7&(.' 2/' >!(;3' ;!,*' A&3' &;6/3.' *4.!(*;5' -/4,!4*1' ./' 2*(' 2/6*\ 32*' A&3' <(/0>2.' 07' 041*(' .2*' 307*(!4.*41*4-*' /,' A/6*4' &41' A!.2' 2&(1;5' &45.2!4>' A2!-2' -&4' <*' -&;;*1' 7(/,!.&<;*' !4F 3.(0-.!/4' 2*' </5' A&3' 2&41*1' /=*(' ./' &3;&=*' /;1*(' .2&4' 2!6 3*;' -&;;*1' , ! 1 1 ' .' A&3' .2*' 3;&=* 3' 10.5' ./' A&.-2' .2*' </5 3' /0.A&(1' <*2&=!/0(' &41' ./' &..*41' 2!6' 04F .!;' 2!3' </52//1' A&3' /=*(' 2*4*=*(' 2*' *4.' /0.' *37*-!&;;5' ./' .2*' 3-2//;' &41' .2*' >5 6 4&F 3!0 6' 2*' ;&A3' 6&1*' 3/6*' 7(/=!3!/4' ,/(' .2*' 7(/7*(' *10-&.!/4' /,' </53' 2*5' /<;!>*1' *=*(5'-!.!Q*4'./"2&=*' 2!3' 3/4' !43.(0-.*1' !4' 6 03!-' >5 6 4&3.!-3' &41' .2*' *;*6*4.3' /,' ;*..*(3' &1 < " I' GA(!.!4>' (*&1!4>' &41' &(!.2 6*.!-' 2*5',0(.2*(' /<;!>*1' .2*' 7&(*4.3' ./' .*&-2' .2*!(' </53' 3/6*' 7(/,!.&<;*' .(&1*' !4' -&3*' .2*5' *(*' 04&<;*' ./' ;*&=*' .2*6' &' 7(/7*(.5'30,,!-!*4.' ./' 6&!4.&!4' .2*6' !41*7*41*4.' ,' .2*5' ,/!;*1' !4' .2!3' .2*5' ,/(,*!.*1' & ' -;&!6' ./' 3077/(.' ,(/6' .2*' -2!;1(*4' !4' /;1' &>*' .!.' A!.2' 3-2//;3' &41' .2*!(' &((&4>*6*4.3' .2*' 3.&.*' 1!1' 4/.' -/4F -*(4' !.3*;,' 2*' 3-2//;3' A*(*' *4.!(*;5' !4' 7(!=&.*' 2&413' .2/0>2' .2*5' A*(*' 041*(' .2*' *5*' /,' .2*' 7/;!-*' 2*' *;*6*4.&(5'!43.(0-F .!/4' "A&3' >!=*4' <5' .2*' 1 !' /(' .*&-2*(3' /,' ;*..*(3' .2*' .*&-2*(' A(!.!4>' &41' .2*' 3-2/;&(3' -/75!4>' 2*' .*0."<//D3' ,/(' (*&1!4>' A*(*' 6/3.;5' 7/*63' *37*-!&;;5' 30-2' &3' A*(*' -&;-0;&.*1' ./' 2&=*' &4' !4,;0*4-*' /4' .2*' ,/(6&.!/4' /,' -2&(&-.*(' 2*' /6*(!-' 7/*63' A*(*' .2*',&=/0(!.*' (*&1!4>' </D' <0.' *3!/1' 2?/>4!3' &41' /.2*(3' A*(*' &;3/' &16!..*1' /;;*-.!/43' /,' 30!.&<;*' 7&33&>*3' ,(/6' .2*' 7/*.3' A*(*' *&(;5' 6&1*' ,/(' .2*' </53' ./' -/75' ;*&(4' <5' 2*&(.' &41' (*7*&.' &;/01' 2*' 2!>2*(' !43.(0-./!4' >!=*4' <5' .2*' 1 "E) /' A&3' &;3/' /,' .2!3' ;!.*(&(5' -2&(&-.*(

&.2*6&.!-3' A*(*' !4.(/10-*1' !4./' .2*' 3-2//;' -0((!-0;06' &3' *&(;5' &3' .2*' V.2' -*4F .0(5' 1(&A!4>' 4/.' .!;;' .2*' 6!11;*' /,' .2*' C.2' -*4.0(5' ' (' 43.(0-.!/4' !4' 6 03!-' 7(/7*(' <*>&4' &<'0.' .2*' .2!(.**4.2' 5*&(

>!=*4 !4 &.!4 &3 A*;; .2* .*0."</ /D <*!4> .2* &.!4 1533*5 /, !=!43 41(4 -43 *(*4-* &41 !4 ;&.*(.!6*3 *(>!;; /(&-* &41 /.2*(3 2**07/3!.!/4 /, .2*3** &0.2/(3 >&=* &4 /77/(.04!.5 /, -/6 604!-&.!4>* & =&(!*.5 /,! !4,/(6&.!/4 !(;3 A*(* *10F -&.*1 /4 .2* 3&6* ;!4*3 2* 2!>2*3.7/!4. !4 /6&4 *10-&.!/4 A&3 &..&!2*1 <5 .2* 3-2//;3 /, .2* (2*./(!-!&43 A2!-2 -&6* !4./ *0!3.*4-* <*,/(* .2* *41 /, .2* (*F 70<;!-&4 &>* 4 .2*3** 3-2//;3 &3 !4 .2/3* G/, .2* 1 (**D A&3 &., !(3. .2* /4;5 ;&4>0&>*.&0>2. !4-* .2* .!6* A2*4 (**D ;!.*(&.0(* <*-&6* .2* 2!>2*3.*10-&F .!/4&; 3.&41&(1 </53 &41 3/6*.!6*3 >!(;3 A*(* .&0>2. (**D ,(/6 .2*!(*&(;!*3.5*&(3. 2*5 A*(* 70. !4./ .2* 2&413 /, & (**D !H- 1 1 /(& (**D ,*6&;* 3;&=* &41 ;*&(4*1 .2* ,!(3. (01!6*4.3 ,(/6 (**D 3-2//;6&3.*(3 3 .2* (&4> /, 30<!(*-.3 A!1*4*1 3/ &3 ./ !4-;01* &6/4> /.2*(.2!4>3 603!-& &41 >*/6*.(5 6/(* !67/(F .&4-* -&6* ./ <* &..&-2*1 ./ 3-2/;&3.!-*10F -&.!/4 2!3 .*41*4-5 A&3 3.(*4>.2*4*1 <5 .2* !4-(*&3*1 1*6&41 ,/(. (**D -0;.0(* A2!-2 6&4!,*3.*1 !.3*;, 041*(.2* 67!(* .2(/0>2/0. .2* ;*4>.2 &41 <(*&1.2 /, .2* *3.*(4 7(/=!4-*3 10-&.!/4 A&3 &((!*1 -4 /4 3.(!-.*(;!4*3 &3 .2* /;1 353.*6 /, 2/6* .(&!4!4> 1!3&77*&(*1 6&!4;5 /A!4> ./ .2* 1!,!23!/4 /, &4 *,,*6!4&.* (*,!4*6*4. &41 .2* 7&(*4.3 2&<!. /, 70..!4> .2*!(-2!;1(*4 !4./ .2* 2&413 /, (**D 3;&=*3 ,.*(.2* .!6* /, *37&3!&4 .2* 2!>2*(70<;!-!43.(0-.!/4 <*>&4 ./ <* & 6&..*(/, !67*(!&; -/4-*(4 *37&3!&4 7&!1 &A&5 &3 60-2 &3 ERVN &440&;;5 ./ .2* &.!4 &41 (**D (2*./(!-!&43 !4 /6*1 &1(!&4 ,/041*1 .2* .2*43*06 .2* ,!(3. D4/A4 70<;!-!43.!.0.!/4 ,/(.2* 2!>2*(*10-&.!/4 A!.2 3&;&(!*1 .*&-2*(3 & S)& ,.*(2!3 .!6* 72!;/3/72*(3 (2*./(!-!&43 &41 >(&6 6&(!&43 A*(* 70<;!-;5 &77/!4.*1 ./ ;*-.0(* !4 &;; .2* ;&(>*(-!.!*3 /, .2** 67!(* 2*5 A*(* 6&!4.&!4*1 7&(.;5 &. .2* *07*43* /, .2*(*37*-.!=* -/6 604!.!*3 7&(.;5 <5 .2* *67*(/(3 &41 *4K/5*1 !4 &;; -&3*3 -*(.&!4 !6 604!.!*3 -/4,*((*1 <5 .2* .&.* 2*/(1!4&(5 *10-&.!/4&; -/0(3* >*4*(&;;5 -/4-;01*1 A!.2 &</53 3!0.**4.2 /(3*=*4F .**4.2 5*&(.2/0>2 (2*./(!-&; !43.(0-.!/4 A&3 3/6*.!6*3 -/4.!40*1 ,&(<*5/41 .2!3 ;!6!. 41 ./A&(13 .2* *41 /, .2* (*F 70<;!-&4 &>* 5/04> 6*4 /, !4.*;;*-.0&; &6<!.!/4 A/0;1 /,.*4 >/ ./ (**-* ./ *4;&(>* .2*!(372*(* /, -0;.0(* 4 .2* $U.2 &(-2 .2* ,*3.!=&; /, * ; $ </53 A2/ 2&1 (*&-2*1 .2* &>* /, 70<*(.5 /(.2*!(,!,.**4.2 5*&(.//D /,, !4 .2* 7(*3*4-* /, .2* &(&3 .2*!(1 - /(70(7;*"*1>*1 ./>&41 70./4 .2* 04&1/(4*1 1 2*5 A*(* .2*4 &,.*(&3&-(!,!-* &. 2/6* .&D*4 <5 .2*!(,&.2*(3 /(>0&(1!&43 &--/67&4!*1 <5 ,(!*413 &41 (*;&.!/43 ./ .2* ,/(06 &41 *4F (/;;*1 !4 .2* ;!3.3 /, -!.!0*43 2* </53 A*(* ,(/6 .2!3 .!6*!4 .2* *5*3 /, .2* ;&A -&7&<;* /, 6&((!&>* &41 </041 ./ 6!;!.&(5 3*(=!-* 2*5 4/A *4.*(*1 07/4 .2*!(" " A2!-2 A&3 (*>&(1*1 &3 .2* ;&3. 3.B* /, *10-&.!/4 & ( )& B! (!&8 &.!49 >/11*33 /, ,/04.&!43 A2/ A&3 &;3/ & >/11*33 /, <!(.2 &41 7/33*33*1 .2* >!, /, 7(/72*-5 . A&3 ,(/6 2*(,/04.&!4 !4 .2* 3&-(*1 *4-;/30(* /, .2* &6*43* <*,/(* .2* /(.& ,.7*4& !4 /6*.2&. .2* *3.&; !(>!43 </0>2. .2* A&.*(4*-*33&(5 ,/(C2* <&.23 &41 70(!,!-&.!/43 /, .2*!(/, -* 2*(* A&* &4/.2*(,/04.&!4 /, >*(!& !4 .2* 7(*-!4-.3 /, !&4& &. (!-;& 4 /6&4 3./(5 >*(!& A&3 .2* -/43/(. &41 -/043*;;/(/, D!4> 06&A2/ 03*1 ./ 6**.2*(!4 & >! ../ !4 .2* 7(*-!4-.3 /, .2* &6*43* ,.*(.2* 1*&.2 /, 2*(<*;/=*1 32* ,;*1 ./ .2* 32(!4* /, .2* (!-!&4 !&4& <5 A2/6 &3 2*(A&!;!4>3 1!3.0(<*1 .2* A/(32!7 32* A&3 -2&4>*1 !4./ .2* ,/04.&!4 A2!-2 </(* 2*(4&6* &((!*1 A/6*4 A/(32!77*1 2*(&. /6* &3 &> /11*33 /, -2!;1<!(.2 !1 . & 3*&">/11*33 1&0>2.*(/, (/.*03 .2* /;1 6&4 /, .2* 3*& !15; .. ? ((* !;!.25!& 8 &.!4 ' (2* (**. >/11*33 /, -2!;1<!(.2 1&0>2.*(/, L*03 &41 *(& &--/(1!4> ./ A2/3* A!;; 32* 6&D*3 -2!;1<!(.2 *&35 /(1!,;!-0;. 4 /6*(.2*(* !3 6/(* .2&4 /4* >/11*33 /, .2* 4&6* 03. &3 *(& A&3 2*(3*;,/.*4 A/(32!77*1 &3 & >/11*33 /, -2!;1<!(.2 3/ (. 6!3 >/11*33 /, .2* 6//4 A&3 !4=/D*1 041*(.2* .!.;* /, !;!.25!&" .2* 6//4 &--/(1!4> ./ &4-!*4. <*;!*, 2&=!4> 2&1 >(*&.!4,;0*4-* 07/4 .2* *=*4. 2* /;1*3. 3*&. /, .2* A/(32!7 /, !;!.25!& A&3 .2* !3;&41 /, (*.* A2*(* & >(/../ &. 4/3303 -/43*-(&.*1 ./ 2*(!3 6*4.!/4*1 !4 /6*(*0. ./ .2!3 -&6* .2* !3;&41 /, `;?3 A2*(* 32* A&3 &;3/ A/(32!77*1 &3 & >/11*33 /, *3.!45 2* 2&1 3&4-.0&(!*3 &41 3.&.0*3 !4 6&45 7;&-*3 <*!4> (*7(*3*4.*1 &3 =*!;*1 ,(/6 2*&1 ./ ,/. 3.(*.-2!4> /0. /4* 2&41 ./ 2*;7 &41 !4 .2* /.2*(2/,,!4>& ./(-2 &3 .2* 356</, /, <!(.2 !4./ .2* ;!>2. /, .2* A/(;1 !(*4* 8 &.!4 ' " 2* (**D >/1F 1*33 /, 7*&-* /4* /, .2* /(& 2* A&3 A/(32!77*1 &3 >/11*33 /, A*&;.2 &41 (*7(*"

3*4.*1' &--/(1!4>;5' &3' &' 5/04>' A/6&4' A!.2'
;0.03' !4' 2*(' &(63' # ')) ' 6/4>'
2*(' /.2*(' &..(!F
<0.*3' &(*' .2*'
" ' .2*'
/;!=*' <(&4-2
*(6*3' 3.&,,'
&41' *&(3' /,' -/(4'
!4' 2*(' 2&41' &41'
/4' 2*(' 2*&1
2*' -/((*37/41F
!4>' 1*!.5' &6!4>'
.2*' /6&43' A&3'
, -' ./' A2/6'&4'
&;.&(' A&3' 3*.' 07'
/4' 0;5' C.2' $ '
' /4' .2*' (*F
.0(4'/,' 0>03.03'
,(/6' &0;
!(,!3!/4*' '
*
!3&4> ;!&' ' ' = ') '
8 (**D9' (/'" 8 04!-2' ;57./.2*D9
7*(;5' &4' &4'" %
4/04-*6*4.' 6&1*' !4' 7(*3*4-*' /,' &' ;*>&;'
&0.2/(!.5' 4' ..!-' K0(!37(01*4-*' 2'
"1 ' A&3' &'37*-!&;' ,/(6' /,' 70<;!-' 7(/3*F
-0.!/4' !43.!.0.*1' *37*-!&;;5' ,/(' /,,*4-*3'
A2!-2' &77*&(*1' ./' !4,;!-.' !4K0(5' 1!(*-.;5'
/(' !41!(*-.;5' 07/4' .2*' 3.&.*' <0.' A2!-2' !.'
A&3' !67(&-.!-&<;*' ./' 7(/3*-0.*' 041*(' .2*'
(*>0;&(' &41' -03./6&(5' 7(/-*10(*' 2*'
&--03&.!/4' A&3' 70.' !4./' A(!.!4>' &41' 2&41*1'
!4' ./' .2*' 3*4&.*' !,' .2*' 3*4&.*' (*-*!=*1' !.'
.2*' &--03*1' A&3' &((*3.*1' /(' 2&1' ./' >*.'
.2(**' 7*(3/43' ./' 3.&41' 30(*.5',/(' 2!6' 0.'
!,' .2*' -2&(>*' A*(*' /4*' /,' .(*&3/4' /(' &4'
&..&-D' 07/4' .2*' -/43.!.0.!/4' .2!3' A&3' 4/.'
&;;/A*1' ,' .2*' =/.!4>' /4' .2*' >0!;.' /('
!44/-*4-*' /,' .2*' &--03*1' A*(*' 04,&=/0(&<;*'
.2*' 3*4&.*' !.3*;,' ,!O*1' .2*' 7*4&;.5' 3077/3F
!4>' !.' ,*;;' 32/(.' /,' .2*' &6/04.' A2!-2';&5'
A!.2!4' !.3' -/67*.*4-*' 8VNN' 1(&-26&*' /('
,;?' $ 3' 0' ' ,' 4/.' .2*' 3*4&.*' (*,*((*1'
.2*' -&3*' &.' /4-*' ./' /4*' /,' .2*' -/0(.3' /,' .2*'
;!&&' /(' *=*4' ./' .2*' ' ./' A2!-2'
.2*' 7(/3*-0./(' 6!>2.' !41**1' 2&=*' &77;!*1'
,(/6' .2*' ,!(3.' ,' .2*' 1*-!1*1' ./'
.&D*' 07' .2*' -&3*' .2*' ,!(3.' .2!4>' !.' 1!1' A&3'
./' ,!O' .2*' 7*4&;.5' !4' -&3*' .2*(*' A*(*' 4/'
;*>&;' 7(/=!3!/43' /4' .2!3' 7/!4.' .' .2*4'
!.2(' *4.*(*1' /4' .2*' !4=*3.!>&.!/4' &41'
1*-!1*1' .2*' -&3*' /(' 2&41*1' !.' /=*(' ./' &'
-/0(.' /,' ;&A' 2*' 4&6*' "1 ' A&3'
&;3/' >!=*4' ./' .2*' 7(/3*-0.!/4' /,' K01>*3' !4'
/,,!-*' ,/(' 4*>;*-.' /,' .2*!(' 10.!*3" &41' ./'
-*(.&!4' -2&(>*3' ;/1>*1' <*,/(*' .2*' &(-2/43'
4&6*;5' -2&(>*3' &>&!43.' -2!;1(*4' ,/(' !;;"'
.(*&.6*4.' /,' 7&(*4.3' &>&!43.' 203<&413' ,/(
!; (*&.6*4.' /,' 2*!(*33*3' &41' &>&!43.' >0&(F
1!&43' ,/(' !;;".(*&.6*4.' /,' .2*!(' A&(13' # '
(
!3721(&' 8 .2*4!&49' 4' !4-/6*".&0'
;*=!*1' /4;5' !4' *0.(&/(1!4&(5'-&3*3' .' A&3'
<&3*1' /4' .2*' /;/4!&4' 1!=!3!/4' /,' -;&33*3'
!4./' , " " ' 'N 1 '
&41' +(' .2*' ;&3.' /,' A2/6' A*(*' 4/.'
.&0*1' &.' &;;' 2*' .&0&<;*' -&7!.&;' A&3' *3.!F
6&.*1' &.' .A*;=*' .!6*3' &' 6&43' 4*.' !4-/6*'
&3' *3.!6&.*1' <5' 2!63*;,' 4' .2*' -&3*' /,' .2*'
, " " A!.2' &' 6!4!606' !4F
-/6*' /,' VNN' 1(&-26&*' &41' 6!4!606' -&7!.&;'
/,' ?NNN' 1(&-26&*' 8_'$' .&;*4.' /(' E@NN9'
.2*' A2/;*' 7(/7*(.5' A&3' .(*&.*1' &3' .&O&<;*'
-&7!.&;' # ' 4' .2*' -&3*' /,' .2*'
'8 NN" ?NN' 1(&-26&*'9,!=*"3!0.23' !4'
.2&.' /,' .2*' N 1 ' 8$VN"$ RNN' 1(&-26&*'9
,!=*"4!4.23' /(' $ NNN' 1(&-26&*' % 2*' ,!(3.'
!43.&4-*' /,' .2*' ;*=5' /,' &4' + ' /-F
-0((*1' !4' C@R' -' 4' UR' ' &4/.2*('
6*.2/1' /,' ;*=5!4>' !.' A&3' !4.(/10-*1' 041*('
.2*' &(-2/4' &03!4!-03' --/(1!4>' ./' .2!3'
.2*' .&O&<;*' -&7!.&;' /,' .2*' 2!>2*3.' -;&33'
A&3',!0*1'&.' /4*",!,.2'/,' .2*' A2/;*' 7(/7*(.5'
2*' (*3!1*4.' &;!*43# ' &3' A*;;' &3' .2*'
-!.!Q*43' A*(*' ;!&<;*' ./' 7&5' .2*' (
4' .2*' 6*.2/1' /,' -/;;*-.!4>' !.' ' $*&'
B
D -2*!(!&' 2*' H .(0-*' /,' /1!' 8;!.*F
(&;;5' H 2/;1!4>' /,' 2&413I9' /<3*(=*1' !4'
(**-*' &.' .2*' >(*&.',*3.!=&;3' A2!-2' A*(*'
=!3!.*1' <5' 3.(&4>*(3# 1' .2*' 4&.!/4&;'
>&6*3'&41' .2*' 9 " 'K4' ..!-&' 2!3'
7*&-*' A&3' 7(/-;&!6*1' <5' 2*(&;13' .2(/0>2F
/0.' (**-*' ./' 3*-0(*' .2*' =!3!./(3' ./' .2*'
>&6*3',(**1/6' !4' 7&33!4>' <&-DA&(13' &41'
,/(A&(13' &41' 3*-0(!.5' 10(!4>' .2*' ,*3.!=&;'
4' .2*' -&3*' /,' .2*' 9 " ' .2*' .(0-*'
;&3.*1' $W 6/4.23' &41' .*4' 1&53
; 72*<?&' ',*3.!=&;' 2*;1' &.' .2*43'
!4' .2*' 6/4.2' ; 72*<V;!/4' 8 &(-2" 7(!;9'
!4' 2/4/0(' /, (.*6!3' &3' >/11*33' /,' .2*'
-2&3*' &41' /,' >&6*' # ' &
;*-.(& 8 (' 9 ' 8$9' &0>2.*(' /,'
>&6*6 4/4' &41' ;5.3*64*3.(&' 3!3.*(' /,'
72!>*4!&' &41' (*3.*3' 2*' 3&=*1' (*3.*3'
,(/6' .2*' 60(1*(*(' /,' 2!3' ,&.2*(' &41'
&33!3.*1' 2!6' &,.*(A&(13' !4' &=*4>!4>' 2!3'
1*&.2' 2*' 6&((!*1' B;&1*3' 2*(' <(/.2*(' 3'
,(!*41' &41' <*-&6*' .2*' 6/.2*(' /,' *1/4'
&41' .(72;03
8@9' 4*' /,' .2*' ;*!&1*3' .2*' 6/.2*(' 8<5'
L*039' /,' &(1&403' &4-*3./(' /,' .2*' (/5&;'
2/03*'/,' (/5
;*-.(06' 8 (' 9 " ' 2!3' A/(1' 2&1'
.A/' 6*&4!4>3' !4' &4.!:0!.5' 8$9' ' 6!0.0(*'
/,'>/;1'&41' 3!;=*(' !4'.2*' 7(/7/(.!/4'/,'&</0.'
C$' &f' 6<*(' .2*'03*' /,' A2!-2' !4' /(4&"

6*4.&.!/4 A&3 ,*4/A4 ./ .2* (**D3 &3 \ 7/;!.!-&; 2* ,!(3. .57!-&; (*7(*3*4.&.!=* / .2* *(/.!- *;*>5 A&3 !64*(6 3 /, ;,!72/4 &4 *;1*(-/4.*67/(&(5 /, /;/4 2* *;*>5 /, 6/0(4!4> /(3/(((/A A&3 <(/0>2.. /7*(,*-.!/4<5 B6/4,1`3/, */3 81!*1 - C?T9 ,.*( 6 .2* *6/.!/4&; *;*6*4.7(*1/6!4&.*1 4.!6&-203/, ?;R" 72/..8&</0.CNN9 >&=* .2* *;*B & ;*&(4*1 .!4>** &41 &3 .203 .2* 7(/./.57* /, .2* *;*>!&- 7/*.3 /, ;*0&41(!& 2&4 -;*3 2;;`.&3/, /3 *(6* !,!4&0 /, /;/72/4 &41 &;;!6&-203/, 5(4* .2* 6&3.*(/, .2*6 &;; 2* 30<(*-.//, .2* ;*0&41(!&4 *;*>5 !3 3/6*.!6*3 .2* 7&33!/4/,;/=* A!.2 !.3 7&!43 &41 7;*&30(*3 .(*&.*1 .2(/0>2 .2* 6*1!06 /, !6&>*3 &41 3!6!;*3 .&D*4 ,(/6 65.2/;/>5 /6*.!6*3 ;*&(4*1 4&((&.!=* /, ,&<;* &41 2!3./(5 ,(/6 A2!-2 7*(3/4&;*6/F .!/4 !3 &<3*4.

3 .57* /, *;*B A!.2 !.3 ;*&(4*1 &41 /<3-0(* 6&44*(A&3 .&D*4 07 &41 !6!.&.*1 &. /6* ./A&(13 .2* *41 /, .2* *70<;!- 2* /6&43 3//4 *&3!;5 30:(&33*1 .2*!((**D 6&3.*(3 </.2 !4 A&(6.2 &41 3!4F -*(!.5 /, ,**;!4> &41 !4 ,!4!32 /, 3.5;* 2* *;*>!*3 /, &.0;03 &(* &6/4> .2*!(*&(;!*3. &..*67.39 <0. !4 .2* 0>03.&4 &>* !4 .2* 2&413 /, /(4*;!03 &;;03 (7*(. 03 !<0;;03 &41 =!1 .2* *;*>!&- 3.5;* A&3 *4.!(*;5 &77(/7(!&.*1 <5 &.!4 ;!.*(&.0(* =!1 !4 2!3 A 32/A*1 2/A &; ;*&(4*1 30<(*-. -/0;1 <* .(*&.*1 !4 .2!3 6*.(* (/6 2!3 .!6* /4A&(1 .2* *;*>!&- 6*.(* A&3 -/43.&4.;5 *67;/5*1 4 .2* ;&.*(;!.*(&.0(* !. A&3 03*1 2D I .2* *7!- 6*.(* ,/(*=*(5 7/33!<;* 30<(*-. &3 ,/(!43.&4-* <5 4.;;!.!3 &6&.!&403 !4 .2*1*3-(!7.!/4/, 3 (*.0(4 ,(/6 /6 I ./ (&4-* . C$?9 4 .2* ?.2 -*4.0(5 .2* 7/*. &0;6!&403 </6 !4 .(0(!& &. .2* <*>!44!4>/, .2* ?.2 -*4.0(5 !3 &;&.* !43.&4-* /, &>*40!4** ;*>!&- 7/*.

;*72&4.3 41!&4 *;*72&4.3 A*(* ,!(3. 03*1 !4 0(/7*&4 A&(,&(* <5 .2* 30--*33/(3 /, ;*0&41*(,/(.2* 70(7/3* /, <(*&D!4> .2(/0>2 .2* *4* 65 3 (&4D3 4 *;*72&4. !,-/67;*.*;5 *:0!77*1 -&((!*1 /4 !.3 <&-D <*3!1*3 !.3 1(!=*(&./A*(/(2/A1&2 >*4*(&;;5 -/4.&!4!4>, /0(&(-2*(3 2* /6&43 ,!(3. ;*&(4*1 .2*!(0** !4 .2* A&(A!.2 5! 203 4 .2* *-/41 04!- &(.2*5>/.7/33*33!/4/, ,(!-&4*;*72&4.3 .2* ,!(3. A2!-2 .2*5 .0(4*1 /.2*!(/A4&--/04. &41 3*1 .2*6 &>&!43. 2!;!7 /, &-*1/4 0. *;*72&4.3 4*=*(7;&5*1 3/!67/(.&4. &(7&(. !4 .2* /6&4 &(6!*3 &3 .2*5 2&1 !4 .2/3* /, ;*0&41*(3 30--*33/(3 2*5 A*(* ;!&<;* ./7&4!-!, .2* *4*65 ,(!>2.*4*1 .2*6 A!.2 ,!(*<(&413 /(!4 &45 /.2*(A&5

&41 !4 .2!3 3.&.* <*-&6 * 1&4>*(/03 ./ ,(!*413 &3 A*;; &3 *4*6!*3 /6<&.3 /, *;*72&4.3 2/A*=*(A*(* &;A&53 .2* -*4.(&; &..(&-.!/4 !4 .2* ,!>2.3 /, A!;1 &4!6&;3 !4 .2* >&6*3 /, .2* -!(-03 &41 ,(/6 .2* .!6 * /, 0>03.03 .2* -2&(!/.3 A2!-2 </(* .2* !6&>*3 /, .2* 1*!,!*1 *67*(/(3 A*(* 1(&A4 <5 *;*72&4.3 !4 .2* 3/;*64 7(/-*33!/4 ;*03!4;& 2* .A/ 653.!- ,*3.!=&;3 /, *6*.*(&41 2*(1&0>2.*(*(3*72/4* -*;*<(&.*1 !4 ..!-& 2*5 .//D .2*!(4&6* ,(/6 .2* -!.5 /, ;*03!3 .A*;=* 6!;*3 1!3.&4.,(/6 .2*43 2!3 A&3 ,(/6 .!6* !6 6*6/(!&; &3*&. /, .2* A/(32!7 /, *6*.*(!43.!.0.*1 !. A&3 3&!1 <5 .2* >/11*33 2*(3*;, &,.*(.2* 1!3&77*&(&4-* /, 2*(1&0>2.*(& & 2* A/(F 32!7 /, !/45303 A&3 *&(;5 &33/-!&.*1 A!.2 .2&./, .2* .A/>/11*33*3 /, .2* *&(.2 ,/(!/45303 A&3 2!63*;, &>/1 /, ,*(.!;!.5 A/(32!77*1 2*(* 041*(.2* 4&6* /, ;&D-2 3 &3 3/4 /, L*03 &41 *6*.*(/(*(3*72/4* 2* (!.0&; /, .2* ;*03!4!&4 3*(=!-* A&3 3077/3*1 ./ 2&=* <**4 /(1&!4*1 <5 06/;"F 743 & &) 2* -/4:0*3./, ;*03!3 A2!-2 .//D 7;&-* &--/(1!4> ./ .2* 3./(5 041*(D!4> (*-2.2*03 >&=* .2*43 & (!>2. ./ .&D* 7&(. !4 .2* 3/;*46!.5 &41 .2* ;*33*(/, .2* .A/, *3.!=&;3 A&3 &-.0&;;5 -*;*<(&.*1 !4 .2*43 ;*03!3 2/A*=*(-/4.!40*1 ./ <* .2* -2!*,3*&./, .2* A/(F 32!7 &41 .2* 2!>2*3. 7(!*3.2//13 A*(* 2*(*1!.&(5 !4 .2* ;*03!4!&4 ,&6!;!*3 /, .2* 06/;7!13* &41 ^*(5D 3 2* 3&4-.!.5 A2!-2 32(/01*1 .2* ;*03!4!&4 653.*(!*3 /--&3!/4*1 .2* , /041&.!/4 / " /4 .2*!(6/1*; !4 /.2*((**D -!.!*3 0. .2* !4!.!&.!/43 &. ;*03!3 A*(* &;A&53 &--/04.*1 .2* 6/3. 3&-(*1 &41 .2* 6/3. *,! -&-!/03 2* *=*4.3 -*;*<(&.*1 !4 .2* 653.*(!*3 A*(* .2* 1*3-*4. /, *(3*72/4* !4./ .2* A/(;1 <*;/A &41 2*((*.0(4 ./ ;!>2. &41 ./ 2*(6/.2*(2* ,/(6*(A&3 -*;*<(&.*1 &. .2* >(*&.*(;*03!4!& <*.A**4 &0.064 &41 3**1".!6** .2* ;&..*(!4 37(!4> &. .2* ;*33*(;*03!4!& 2* 356</;!-&; (*7(*3*4.&.!/4 /, </.2* *=*4.3 2&1 .2* 3&6* /<(*-. 2!3 A&3 ./ *0-!.* &41 3.(*4>.2*4 !4 .2* 6!413 /, .2* !4!.!&.*1 <5 6*&43 /, .2* 3./(5 /, *(3*72/4* .2* ,&!.2 !4 .2* -/4.!40&4-* /, ;!,* &41 & 353.*6 /, (*A&(13 &41 704!32F 6*4.3 &,.*(1*&.2 2* (!>2. /, !4!.!&.!/4 !4./ .2* ;*03!4!&4 653.*(!*3 A&3 !4 &;; 7(/<&<!;!.5 (*3.(!-.*1 /(!>!4&;;5 ./ !42&<!F .&4.3 /, ..!-& <0. !. A&3 4/.;/4> <*,/(* !. A&3 *0.*41*1 ./ & (**D3 4 ;&.*(.!6*3 &,.*(.2*!(-;/3*(-/44*0!/4 A!.2 .2* (**D3 .2* /6&43 A*(* &;3/ &16!..*1 &(<&(!&43 A*(* *0-;01*1 &41 3/ A*(* &;; A2/ 2&1 <**4 >0!;.5 /, 60(1*(/(&45 /.2*(3*(!/03 /,,*4-* 2* 4*/725.* A&3 7(/7/3*1 ,/(!4!.!&.!/4 <5 &4 .2*4!&4 -!.!0*4 A2/ 2&1 2!63*;, <**4 !4!.!&.*1 * &3 &16!..*1 ,!(3. ./ .2* ;*33*(653.*(!*3 &. .2* ;*33*(" . .2!3 3.&>* .2* -&41!&.*3 A*(* .*(6*1 : &41 A*(* &;;/A*1 ./ .&D* &;!6!.*1 7&(. !4 .2* >(*&.*(9 " .2* 4*0. &0.064 2*5 A*(* 4/. !4!.!&.*1 2/A*=*(!4./ .2* >(*&.*(653 .*(!*3 04.!; .2* >(*&.*(9 " 30--**1F !4> .2*3* &41 &,.*(.2*!(!4!.!&.!/4 A*(* -&;;*1 ! /(3** (3 2* *0.*(4&; &((&4>*6*4. /, .2* ,*3.!=&; A&3 !4 .2* 2&413 /, .2* 3*-/41 &(-2/4 /((-2/4 &3!;*03 A2/ *0*(-!3*1 & >*4*(&; 307*(!4F .*41*4-* =*(.2* A2/;* /, .2* 70<;!- A/(F 32!7 * A&3 &33!3.*1 <5 ,/0(/=*(3**(3 &1 .A/ /, A2/6 A*(* *;*-.*1 ,(/6 .2* A2/;* </15 /, -!.!Q*43 &41 .A/, (/6 .2* ;*03!4!&4 ,&6!;!*3 /, .2* 06/;7!13* &41 ^*(5D*3 ! !7!K* 2!>2"7(!*3.;5 /,,!-!&;3 A2/ -&((!*1 /0. .2* ;!.0(>!-&; ,04-.!/43 &. .2* -*;*<(&.!/4 A*(* &;3/ -2/3*4 ,(/6 .2*3* .A/ ,&6!;!*3 2* ;*(/72&4. 3 /(-2!*, (!(!*3. <*;/4>*1 ./ .2* 2/03* /, 06/;703 . A&3 2!3 10.5 ./ *02!<!. ./ .2* !4!.!&.*1 .2* 653.*(!/03 32(!4*3 &41 7(/<&<;5 ./ ;*&1 .2* 7*(,/(6&4-* /, .2* 25643 2&41*1 1/A4 ,(/6 2!3 &4-*3./(3 2* ^*(50 /(2*(&;1 *3 &3 /, .2* 2/03* /, .2* ^*(5D,!3 * 3066/4*1 .2* !4!.!&.*1 !4 .2* .(&1.!/4&; ,/(6 /, A/(13 ./ A/(F 32!7 7(/4/04-!4> ,/(.2*6 .2* ,/(6 /, 7(&5*(2* &1.!-2 3 /(./(-2"<*&(*(&41 .2* 307*(!4.*4F 1*4. /, .2* 3&-(!F ,!-* A*(* &;3/ !6F 7/(.&4. /,,!-!&;3 2* ;*33*(-*;*<(&.*1 !4 .2* 6/4.2 4.2*3 .*(;/4 A2!-2 -/((*37/41*1 (/0>2;5 ./ *<(0&(5 2* 3*(=!-* A&3 7*(,/(6*1 &. >(&* & 30<0(< /, .2*43 /4 .2* !3303 !4 .2* .*67;* /, *6*.*(&41 /(* &41 &--/6" % :-* A&3 &--/(1!4> ./ /4* &--/04. (*7(*F 3*4.*1 &3 .2* 3/4 /. *(6*3 &41 >;&0(3 1&0>2.*(/, *-(/73 &--/(1!4> ./ &4/.2*(/4* /, .2* 3/43 /, 06/;703

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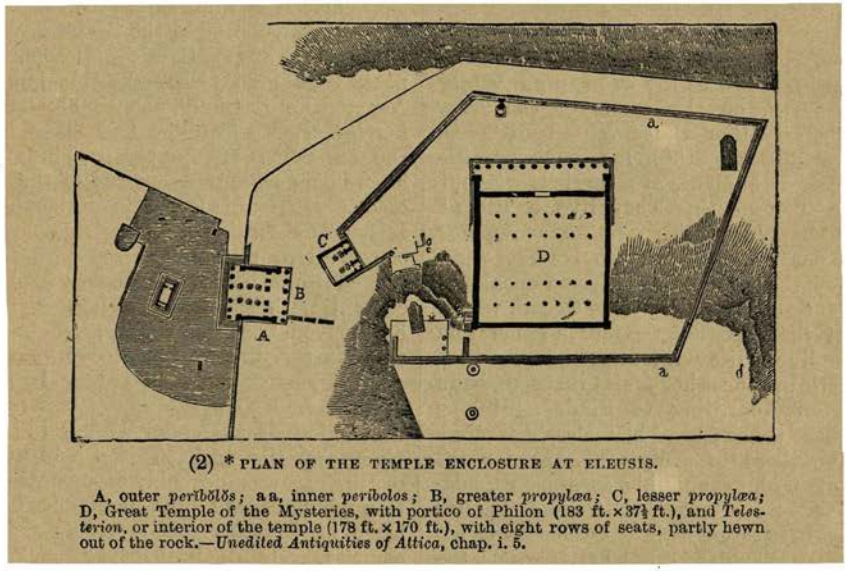
panied by mystical rites, the nature of which is unknown. It was said to have been founded at the wish of Hērăclēs, who, being a stranger, was excluded by usage from the greater Eleusinia. The great Eleusinia were celebrated in the middle of Bŏēdrŏmĭōn (roughly = September), for a space probably of nine days. The first days were devoted to the preparation for the main festival, bathing in the sea, sacrifices of purification, and the like. On the sixth day, the 20th Boedromion, the immense multitude of *mystæ*, in festal attire and crowned with myrtle, marched in procession along the sacred way to Eleusis, preceded by the image of Iakchos, who gave his name to the celebration. Much time was spent, partly in the performance of acts of devotion at the numerous holy places on the road, partly in merriment and banter; so that it was late in the evening before they arrived at the *Tĕlestērĭŏn*, or house of initiation, at Eleusis. This was a magnificent temple erected by Pĕrĭclēs in place of the ancient temple of Demeter, which had been burnt down in the Persian War. During the following nights various celebrations took place at those spots in Eleusis and its neighbourhood which were hallowed in the story of the goddess. In these were represented the sorrowful searching of the goddess for her lost daughter, and the mother's joy at finding her. The transition from sorrow and fasting to joy and festivity was symbolized by the potion mixed of water, meal, and penny-royal, supposed to have been the first food tasted by Demeter after her reception in Eleusis. It was probably while these celebrations were going on that the *Epoptæ*, and the *Mystæ* who were called to their final initiation, took part in the mysteries proper. Mysterious rites were first, it would seem, performed in darkness, which threw the celebrants into a state of painful suspense and expectation. Then, in a dazzling light, and amid great splendour, the Hierophantes showed them certain shrines of the goddess and Iakchos, explaining their meaning; holy songs being meantime performed, partly by himself, partly by choirs with instrumental accompaniment. The climax of the whole was the sacred drama, a representation of the story of the three goddesses in the worlds above and below. The festival was brought to a close by a libation of water from two vessels in the shape of a top (*plēmŏchŏē*). The water was poured in the direction of east and west with mystical formulæ.



(2) * PLAN OF THE TEMPLE ENCLOSURE AT ELEUSIS.

A, outer *perĭbŏlŏs*; a a, inner *perĭbolos*; B, greater *propylæa*; C, lesser *propylæa*; D, Great Temple of the Mysteries, with portico of Philon (183 ft. × 37½ ft.), and *Telesterion*, or interior of the temple (178 ft. × 170 ft.), with eight rows of seats, partly hewn out of the rock.—*Unedited Antiquities of Attica*, chap. i. 5.

The ancients speak of the revelations made in the mysteries as having a beneficial influence on morality, pointing as they did to reward and punishment after death. They represent them further as giving comfort in the trials and sufferings of life, and as opening brighter hopes after death. It is certain that there were few citizens of Athens who were not initiated; many who neglected the rite early in life

A*(*' !4!.!&.*1' !4' /;1' &>*' /(' !4' .2*' 7/70;&(' <*;!*,' .2*' !4!.!&.!/4' -/4,*((*1' &' -;&!6'./' .2*'K/53'7(/6!3*1'!4' .2*' 653.*(!*3' ./' .2*'>//1'&,.*('1*&.2

2*' ;*03!4!&4' 653.*(!*3' 6&!4.&!4*1' .2*!(' 7/3!.!/4' ,/(' &' ;/4>' .!6*' 6/4>' .2*' /6&43' 6*4' /,' .2*' 2!>2*3.' (&4D' &3' ,/(' !43.&4-*' &1(!&4'&41' &(-03' 0(*;!03' 1*!>4*1' ./' (*-*!=*' .2*' !4!.!&.!/4' 2*4' .2*' 2(!3.!&4' *67*(/(' &;*4.!4!&4' 70.' &4' *41' ./' &;,' (*;!>!/03' -*;*<(&.!/43' <5' 4!>2.' 2*' *0-*7.*1'.2*' 9 " 'A2!-2'-/4.!40*1' !4' *0!3.*4-*' .!;;' .2*5' A*(*' &</;!32*1' <5' 2*/1/3!03' ./A&(13' .2*' *41' /,' .2*' C.2' -*4.0(5'

;*0.;!?(;&' ',*3.!=&;' !4' 2/4/0(' /,' (/3'-*;*<(&.*1'&.' &6/3' # '

;*=*4' '/

G ;!33&' '

;53!06' 4' /6*(' ;53!06' !3' &' <*&0.!,0;' 6*&1/A'&.'.2*' A*3.*(4'*0.(*6!.5' /,' .2*' *&(.2' /4' .2*' <&4D3' /,' .2*' (!=*(' ->&403' 2!.2*(' .2*' ,&=/0(*1' /,' L*03' 30-2' &3' 2J1&6&4.253' 2!3' 3/4' &41' 2!3' 3/4"!4";&A' 4>;&03' &(*' -&((!*1' A!.2/0.' 2&=!4>' 3**4' 1*&.2' 2*5' ;!=*' &' ;!,*' /,' 7*(,*-.' 2&77!4*33' .2*(*' !3' 4/' 34/A' 4/(' 3./(6' 4/(' (&!4' <0.' .2*' -//;' A*3.' A!41' <(*&.2*3' .2*(*' ,/(' *=*(' *3!/1'37*&D3'/,' .2*' !3;&413'/,' .2*' <;*3.' <5' .2*' -*&4' A2*(*' 3/6*' /,' .2*' 2*(/*3' /,' .2*' ,/0(.2'>*4*(&.!/4' /,' 6*4' ;!=*' &' ;!,*' A!.2/0.' 7&!4' &41' A2*(*' .2*' *&(.2'7(/10-*3'2*(',(0!.3'.2(**' .!6*3'!4' .2*' 5*&(' --/(1!4>' ./' !41&(' &;,' A2/' 2&=*' .2(**' .!6*3'7&33*1'<;&6*;*33;5'.2(/0>2' ;!,*' ;!=*' .2*(*' !4' 7*(,*-.' <;!33' 041*(' .2*' 3A&5' /,' (/403' &41' 2!3' &33*33/(' 2&1&'' 6&4.253' 0-2' &(*' &1603' &41' *;*03' &41' -2!;;*3'.2(/0>2'.2*' !4.*(-*33!/4'/,' 2!3' 6/.2*(' 2 .!3' A!.2'L*03' !D*' (/403'.2*' !.&43'&,.*(' .2*!(' (*-/4-!;!&.!/4' A!.2'L*03' 1A*;;' /4' .2*3*' !3;&413' 4' ;&.*(' .!6*3' ;5F 3!06' A!.2' !.3' <;!33' A&3' ;/-&;!Q*1' !4' .2*' A/(;1'<*;/A'&41'(*>&(1*1'&3' .2*' &</1*' /,' .2/3*' A2/6' .2*' K01>*3' /,' .2*' 1*&1' 2&1' 7(/4/04-*1' A/(.25' /,' !.' & ' / ' - &' =

6&4-!7&.!/' 8 /6&49' 2*' ,/(6&;' ;!<*F (&.!/4'/,' &'3/4' ,(/6'.2*' -/4.(/;'& " '/,' 2!3',&.2*(' ,' .2*'3/4'A*(*'3/;1'.2(**' .!6*3' /=*(' &;,' .2*' (!>2.3' /,' 2!3',&.2*(' -&6*' ./' &4' *41' ,' .2*4' &' ,&.2*(' A!32*1' ./' 6&D*' &' 3/4' 2!3' /A4' 6&3.*(' # ' 2*' 6&1*' 2!6' /=*(' .2(**' .!6*3' <5' " " $ '/(' &' ,!-.!.!/03'3&;*' ./' &' .2!(1'7*(3/4' 2*' .2!(1' 7*(3/4'*6&4-!7&.*1'2!6'.2*',!(3.'&41'3*-/41' .!6*' 3/' .2&.' 2*' -&6*' &>&!4' !4./' .2*' -/4F ./;' /,' 2!3' ,&.2*(' ,.*(' 70(-2&3!4>' 2!6' &' .2!(1'.!6*' 2*' *!.2*(' *6&4-!7&.*1' 2!6' 2!6F 3*;,' &41' .203' <*-&6*' 2!3' " '/(' 2*' 3/;1' 2!6' <&-D' ./' 2!3',&.2*(' ./' A2/6' 2*' 4/A' 3.//1'4/.' !4' .2*' (*;&.!/4' /,' &' 3/4' <0.' "' " ' 3/' .2&.' .2*' ,&.2*(' -/0;1' ;!<*(&.*' 2!6' A!.2/0.' 6/(*' &1/' 4' .2!3' -&3*' .2*' ,&.2*(' (*6&!4*1' " ' /,' .2*' 3/4' 2*' *6&4-!7&.*1' 3/4' 1!1' 4/.' &3' !4' .2*' -&3*' /,' &1/7.!/4' # ' 7&33' !4./' .2*' ' /,' &4/.2*(' &41' .2*(*,/(*' (*.&!4*1' 2!3',&.2*(3',&6!;5'4&6*' 0.' 2*' ;/3.' 2!3' (!>2.' ./' !42*(!.'!4'1*,&0;.' /,' &' A!;;

6J.2!14' /4' /,' /3' &41' !.2/403' <(/.2*(' /,' *64/4',(/6' A2/6' 2*' 3*!Q*1' .2*' >/=*(46*4.' /,' .2*' .2!/7!&43' *' A&3' 3;&!4'<5' *(&-;*3'A2*4'.(&=*;;!4>'!4'3*&(-2' /,' .2*' &77;*3' /,' .2*' *37*(;1 3

66 *!&' 2*' 3*(!/03' &41' 6&K*3.!-' 1&4-*' /,' .2*' -2/(03'!4' .2*' (**D' (&>*15

67 !1-;*3' ' (**D' 72!;/3/72*(' &41' 7/*.' </(4' /,' &' (!-2' &41' 4/<;*' ,&6!;5' &.' >(!>*4.06'!4' !-!;5'&</0.'CTN' /' !D*' 2!3' ,&.2*(' ./4' A2/' 2&1' .&D*4' 7&(.'!4' .2*' *070;3!/4' /,' .2*' .5(&4.' 2(&351&*03' 2*' A&3' &4' &(1*4.' 3077/(.*(' /,' .2*' 1*6/F -(&-5' *' ;*4.' 2!3' &!1' !4' 1*3.(/5!4>' .2*' &(!3./-(&-5' &41' 3*..!4>' 07' &' 1*6/-(&.!-/43.!.0.!/4' &;.2/0>2' 2!3' ,*;;/A"-!.!Q*43' /,!,*(*1' 2!6' .2*' D!4>;5' 1!>4!.5' *' A&3' -/4.*4.' A!.2' .2*' 7/A*(,0;' !4,;0*4-*' A2!-2' 2*' 1*(!=*1',(/6' 2!3' A*&;.2' 2!3' *;/:0*4-*' &41' *0.(&/(1!4&(5' D4/A;*1>*' !3' &-F :0&!4.&4-*' A!.2' 6*1!-!4*' &41' 4&.0(&;' 3-!*4-*' A&3' 3/' >(*&.' &3' ./' A!4' 2!6' .2*' (*70.&.!/4' /,' &' A/41*("A/(D*(' !4' 2!3',!,*F .!6*' &41' .2*' 7/3!.!/4' /,' &' 2*(/' &,.*(' 2!3' 1*&.2' .' A&3' 7(/<&<;5' &' 7/;!.!-&;'(*=/;0(' .!/4' A2!-2'-&03*1' 2!6' !4' &1=&4-*1' &B' ./' ;*&=*' 2!3' -/04.(5' &41' 3*..;*' !4' .2*' *;/" /44*3*' *' 1!*1' &</0.' C N' ' (' &A&5' W/0!' !-!;5' ';&.*('3./(5'(*7(*3*4.*1'2!6' &3' 2&=!4>' .2(/A4' 2!63*;,' !4./' .2*' -(&.*(' /,' .4&' .2&.' 2!3' 3011*4' 1!3&77*&(&4-*' 6!>2.' 6&D*' .2*' 7*/7;*' <*;!*=*' 2!6' &' >/1' 2*' .(0.2' 2/A*=*(' A&3' 3&!1' ./' 2&=*' <**4' (*=*&;*1' <5' .2*' &77*&(&4-*' /,' 2!3' 32/*3' .2(A4' 07' <5' .2*' =/;-&4/

'A&3'.2' &0.2/(',' 7(/7!.!&./(5'256 43' 7(/<&<;5'/,' &' 653.!-&;' &41' (*;!>!/03'-2&(&-F .*(' /,' &' 1!1&-.!-' 7/*6' /4' 6*1!-!4*' &41' /,' &4' *7!-' 7/*6' !4' .2(**' </!D3'07/4' &.0(*' 2!3' ;&3.' A&3' 2!3' (!' D ' &41' 2&1' &' 2!>2'(*70.&.!/4' !4' &4.!:0!.5' </.2',/('!.3'-/4F .*4.3' &41',/('!.3',/(6' !4' A2!-2' .2*' A(!.*(' .//D' /6*(',/(' 2!3' 6&3.*(' /43!1*(&<;*' ,(&>6*4.3'/,'!.'(*6&!4'A(!..*4'!4'&'30<;!6*' &41'7(*>4&4.'3.5;*' !3'353.*6'!3'>(/041*1' 7/4' .2*' &330 67.!/4' /,' ,/0(' 04-2&4>*&<;*' *;*6*4.3',!(*8.2*' 4/<;*3.'/,'&;;9'&!(' *&(.2

&41 "A&.*(&41 .A/ /77/3!4> ,/(-*3 /=* A2!-2 <!413 &41 &..(&-.3 &41 &.* A2!-2 3*7&(&.*3 &41 (*7*;3 2* ,/(6&.!/4 /, .2* A/(;1 <*>&4 A2*4 .2* *;*6*4.3 2*;1 ./F >*.2*(<5 /=* &41 3*7&(&.*1 <5 &.* &>&!4 .*41*1 ./"04!/4 !..1*(.2* !4.;0*4-* / /=* 2* 6&4!,/;1 6!4>;!4>3 &41 3*7&(&.!/43 /, .2* *;*6*4.3 /(!>!4&.*1 .2* 1!,,*(*4. 37*-!*3 .2&. /, 6&4 !4-;01*1 0(7*(-*7.!/43 &(!3* ,(/3& .2* 7&(.!-;*3 A2!-2 &(* .2(/A4 /,,<5 .2!4>3 &41 3.(*&6 !4 07/4 03 .2(/0>2 37*-!&;7/(*3 /(7&33&>*3 3 !4 /0(7*(3/43 &;; .2* ,041&6*4.&; *;*6*4.3 &(* 04!.*1 ? &(* *4&<;*1 <5 .2*!(6*&43 ./ (*-/>4!3* A2&.! 3 2/6/F >*4*/03 /0.3!1* 03 0(!1*&3&(* 4/. 70(*< 0. -/67/041*1 /, .2* 7&(.!-;*3 A2!-2 7/0(!4 07/4 03 &41 >/ /0. ,(/6 2* 353.*6 / 67*1/-;*3 /,.*4 &>(**1 A!.2 .2&. / 5.2&>/(&3 /.2 &1/7.*1 .2* .2*/(5 /, .(&436!>(&.!/4 &41 .2* 6/(&; &41 &3-*.!-1/-.(!4*3 -/44*-.*1 "A!.2 !. 2* 7(/7!.!&F ./(5 2 443 &</=* 6*4.!/4*1 6&5 A*;; 2&=* <**4 !4 2&(6/45 !.2 .2*3* !1*&3 67.;/ ? 5? 0 0 AT 4-&03.!D* 2* &(. /, 7&!4.!4> <5 <0(4!4> !4 .2* -/;/0(3 # 4- 2143 # @ 4-V6;14 8 (**D9 (!>!4&;;5 .2* 3/4> 304> <5 .2* -2/(03 &. .2* / /(,*3.31 7(/-*33!/4 2*;1 &. .2* >(*&. 4&.!/4&; >&6*3 !4 2/4/0(/, .2* =!-./(*!.2*(/4 .2* 1&5 /, 2!3 =!-./(5 /(/4 !.3 &44!=*(3&(5 2* A/(1 -&6* &,.*(A&(13 ./ 1*4/.* &45 3/4> A(!..*4 !4 -*;*<(&.!/4 /, 1!3.!4>0!32*1 7*(3/43 &41 !4 ;&.*(.!6*3 &45 37/D*4 /(A(!..*4 7&4*>5(!- A2&.*=*(41*!3 &0>2.*(/, 2!(/4 &41 .2* &!&1 2&(!-;/ A!,* /, B! -03 6/.2*(/, *;*03 &41 *;&6/4 41*!O!3 .*(6 !4 .2*4!&4 K0(!3F 7(01*4-* 1*4/.!4> & 7(/3*-0.!/4 !4 4/F ./(!/03 -&3*3 &3 ,/(!43.&4-* &>&!43. .2* (5.&4*3 !, .2*5 (*,03*1 ./ 70. & :0*3.!/4 ./ .2* =/.* !4 .2* >(*&. &33*6<;5 .A&3 *37*-!&;;5 *67;/5*1 &>&!43. 7*(3/43 A2/ &;.2/0>2 ;5!4> 041*(7(*306*1 ./ -;&!6 & 32&(* !4 -!=!- .!>2.3 &3 87&(.!-0F ;&(;5 <5 !43.!.0.!4> 7(/3*-0.!/43 /(&7F 7*&(!4> 37*&D!4> &41 =/.!4> !4 .2* &33*6F <;5 f (!3./.;* $ " (" @T ?@ ? g 41(/6;3 8 (**D9 8$ </ /, ;*&.2*(/(, *;. (!3!4> &3 ,&(&3 .2* -&;, /(&</=* !. &41 ,!..!4> -;/3* ./ .2* ,// 4 ,(/4. !. A&3 /7*4 &41 ,&3.*4*1 "A!.2 3.(&73 . A&3 37*-!&;;5 &1&7.*1 ,/(K/0(4*53 /(204.F !4> &41 -/43*:0*4.;5 &77*&(3 /,.*4 !4 (*7(*3*4.&.!/43 /, (.*6!3 &41 /, .2* (;4,>3 04 *(3 !4 (&-*3 ./1 /,.*4 A/(* !. #) ,!>$ &41 ! 3 8@9 .2!-D A//;;*4 (0>86*4.!/4*1 <5 &(.!&; &41 0=*4&; !!! $N@9 4156;/4 4 (**D 65.2/;/>5 .2* <*&0.!,0;3/4 /, R.2; ? 8/(&--/(1!4>./ &4/.2*(3./(5 L*43 &41 &!5- 9 1&0>2.*(/, BV;43 D!4> /, ;!3 ,&.2*(/, 7*03).?;03 &41 &*/4 .2* ,!(3./, A2/6 A6!F G.2*>/=*(46*4./, .2* -/04.(5 <5 /X6:0*(!4>!4 &(&-* A2!-2 2!3 ,&.2*(2&1 3*./4 ,//. * A&3;/=*1 <5 3;`4 !2* gB1**Z /, .2* 6//4 <5 "A2/6 2*2* 2&1,!,.5 1&0>2.*(3 2*5 A*(* 3077/3*1 ./ 6!</;!Q !.2* ,!,.5 ;04&(6/4.23 A2!-2 !4.*(=*4*1 <*.A**4 .2* ;567!- >&6*3 !3 >(&=* A&3 &; ;567!& 4/.2*(3./(5 6&1* 2!6 & 32*7F 2*(1 /(204.*(/4 /04. &.613 !4 &(!& L*03 <*3./A*1 /4 2!6 *.*(4&; 5/0.2 &41 *.*(4&;;!,* !4 .2* ,/(6 /,04<(/D*4 3;06<*(*;*4* 1*3-*41*1 *=*(5 4!>2. ,(/6 2*&=*4 ./ =!3!. &41 *6<(&-* .2* <*&0.!,0; 3;**7*(!4 2!3 >(/../ 44!03 #T " 2* ,/041*(/, .2* *;;*4!Q*1 .57* /, &.!4 7/*.(5 * A&3 </(4 @ T / &. !3* !4 ;&<(&01 A&3 <5 1*3-*4.& (3*-!3*1 *33&7!&4 * A&3 7(/<&<;5 *10-&.*1 &. &(*4.06 &41 3*(=*1 A!.2 .2* /6&43 !4 .2* *-/41 04!-' &(' !4' &(1!4!& A2*4-* &./ ./!D 2!6 ./ /6* !4 @NC ! 3 7/ .!*&; .&;*4. 2*(* -&6* ./ 2!3 &!1 4/. !4 & 7*-04!&(5 A&5 8,/(2* A&3 !4 3;*41*.-!(F -063.&4-*3 ./ .2* *41 /, 2!3 ;!,*9 <0. &3 &4 !4.(/10-.!/4 ./ .2* ,&=/0(/, .2* >(*&. 6*4 6/4> .2*3* 603.<* 6*4.!/4*1 .2* -!7!/3 &41 0;=;03 /<;;;/(A2/ ./D 2!6 !4 2!3 (*.!40* ./ .2* ./;!&4 A&(!4 $RT &41 A2/3* 3/4 7(/-0(*1 2!6 .2* -!.!Q*4F 32!7 ,!=* 5*&(3 ;&.*(8$RC9 >/0.5 &,.*-F .!/4 1!1 4/. 7(*=*4. 2!6 ,(/6 -/4.!40!4> 2!3 ;!.*(&(5 A/(D ./ &4 &1=&4-*1 &>* A&3 !4 2!3 3!0.5"3*=*4.2 5*&(2*4 2* ,!4!32*1 2!3 " " &41 2* 70. &.(&>*15 /4 .2* 3.&>* 32/(.;5 <*,/(* 2!3 1*&.2 1!*1 !4 $UN !4 2!3 3*=*4.!*.2 5*&(. A&3 3&!1 .2&. .2* -!7!/3 7;&-*1 2! !6&>* !4 .2*!(,&6!;5 =&0;. 44!03 "A(/.* 7/*.(5 A!.2 30--*33 !4 &>(*&. 406<*(/, 3.5;*3 0. !4 2! /A4 /7!4!/4 &3 A*;;* &3 !4 .2&. /, 2!3 ,*;;/A" -!.!Q*43 2!3 >(*&.*3. A/(D A&3 2!3 " " !4 *!>2.**4 <//D3 2!3 &3 &* -2(/4/F ;/>!-&;* 4&((&.!=* /, /6&4 2!3./(5 !4 =*(3* !D* 3*"=!03 , " !.<*>&4 A!.2 .2* 1*3.(0-.!/4 /, (/5 &41 -&6* 1/A4 ./ .2* 7/*.3 /"A4 .!6*3 4 .2!3 7/*6 44!03 "-(*&.*1 ,/(.2* /6&43 .2*!(,!(3. 4&.!/4&; *7!-' .2* ,&6* I, A2!-2 A&3 /4;5 *-;!73*1 <5 *(>!; 0. 2* 1!1

6/(*' 5' .2*' !4.(/10-.!/4' /,' .2*' (**D' .!/4' /,' .A*4.5"*!>2.' 6/1*;' 37**-2*3' 3/6*'
2*0&6*.*(' 44!03' 1!1' 60-2' ./' ,0(.2*(' .2*' /,' A2!-2' A*(*' (*&;;5' 1*;!=*(*1 4!4*' </D3'
,0.0(*' 1*=*;/76*4.' /,' &.!4' 7/*.(5' !3' /,' ;*..*(3' &41' .A/' /,' 7/*63' 3&-(*1' &41'
7(*1*-*33/(' 3*=!03' 2&1' -/4.!40*1' ./' 3*-0;&(' 2*' ,!(3.' </D' /,' 7/*63' -/4.&!4B'
GA(!.*' !4' .2*' 4&.!=*' &.0(4!&4' 6*.(*' A2!-2' ;/4>*(' .2*' 3*-/41' 32/(.*(' &41' --&33!/4&'
A&3' 2&(1;5'-&7&<;*' /,' &(.!3.!-' 1*=*;/76*4.' 7!*-*3' /.2' 32/A' &' -*(.&!4' -/66&41' /,'
0.' .2*' 7(&-.!-*' /,' GA(!.!4>' !4' .2*' 3.(!-' /,(6
1&-.5;!-' 6*&30(*' *4&<;*1' .2*' &.!4' 7/*.3' 4/6/.;&' '30</(1!4&.*' 1!=!3!/4' /,' .2*'
./' &33!6!;&.*' .2*' /.2*(' 6*.(!-&;' ,/(63' 7(*"' ; ('!4' .2*' 7&(.&4' &(65'*# ' / 3'
3*4.*1'<5' (**D';!.*(&.0(* &41' 0 '
,'.2*' 44&;3'A*'7/33*33'(*;&.!=*;5'37*&DF 45&;;13' 7!.2*.'/,' (*3' 8 -*' ',
!4>' /4;5' &' 36&;' 406<*(' /,' ,(&>6*4.3' 45/' 8$9' (**D' >/11*33' /,' <&..;*'
/6*' /,' .2*3*' -&4' /4;5' <*' 1!3.!4>0!32*1',(/6'7(/3*'<5'.2*!(' 6*.(!-&;',/(6'' /.2*(3'&(*' -/67&4!/4' /,' (*3' # ' '!1*4.1,!*1'<5'
=*(5',!4*'</.2' !4' ,/(6' &41' !1*&3' 44!03' .2*' /6&43' A!.2' *;; 4&' # ' '
32/A*1' -/43!1*(&<;*' -&7&-!.5' .//' &3' & ? ' .I' 4*' /,' .2*' & ' # 2
A(!.*(' /,' .(&>*1!*3' !3'1(&6&3' 2!-2'A*(*' 7
=*(5'406*(/03'A*(*' -/67/3*1'&,.*(' (**D' 13' 8 &.!4' ' 2*' (**D'>/11*33'
6/1*;'3'*37*-!&;;5'.2*'.(&>*1!*3'/,' 0(!7!1*3' /,' .2*' A!413' (>*3.*3'
/(*' .2&4'.A*4.5'/,' .2*3*' 0(!7!1*&4'7;&53' L*725(! 3' /(1&3' &41' ?.?3'.2*' 6/(4!4>'
&(*' D4/A4' ./' 03' <5' .2*!(' .!.;*3' &41' 30(F 3.&(' ('&41' /,' .2*'3.&(3'!4'>*4*(&;'
=!=!4>' ,(&>6*4.3' *' &;3/' A(/.*' 2' *(' 2&!(' !3'<*&0.!,0;' 2*(' &(63' &41',!4>*(3'*'
-' /(' .(&>*1!*3' /4' /6&4' 30<*-.3' &3' (0115' 2*(' A!4>3' &(*' A2!.*' 2*' (!3*3B
,/(' !43.&4-*' .2*' (*7(*3*4.!4>' *&(;5',(/6'2*(' -/0-2'/4'.2*' &3.*(4' -*&4'
.2*3*' 3!*>*' &41' -/4:0*3./,' .2!3' -!.5'<5'2!3' &41'!4'&3&,,(/4"-/;/0(*1'6&4.;*'/4'&>/;1*4'
7&.(/4' 0;=!03' /<!;!/(' !3' -/4!*1!*3' -2&(!/.' 1(&A4'<5'A2!.*' 2/(3*3'32*' -/6*3'
A*(*' 4*!.2*(' 3/' 406*(/03' 4/(' 3/' !67/(.&4.' &3' 2!3' .(&>*1!*3' *3!1*3' .2*3*' 2*' A(/.*' ,/(.2' &3' 2*(' <(/.2*(3' 2*(&;1' ./' 7(/-;&!4K"'
3*=*(&;' </!D3' /,' /(' -/;;*-.!/43' /,' .2*' (!3!4>' /,' 1&5' ./' 6/(.&;3' &41' !66/(.&;3'
7/*63' /,' =&(!/03' -/4.*4.3' &41' !4' =&(!/03' /=!4>' &;;' ,(*32' &41' 5/0.2,0;' <*&0.5' 32*'
6*.(*3' *=*(&;' /,' 2!3'&1&7.&.!/43'/(.(&43F -&(!*3' &A&5' ;!.03' ?72J;43' (!/4' &41'
;&.!/43' /,' (**D' /(!>!4&;3'A*(*'7(/<&<;5'!4F !.2/403'./' A2/6'32*' <*&(B' *!42 4' &41'
-;01*1'!4' .2*3*K' &3',/(' !43.&4-*' .2*' :2' 6 .2 /4' 2*' !3' (*7(*3*4.*1'!4' A/(D3' /,'
(1 '&'>&3.(/4/6!-'A/(D'&,.*(' (-2*3*' &(.*&3' 2/=*(!4>'!4' .2*'3D5' /(' (!1!4>' /4' 2*(' -2&(!/.' 6/=!4>' A!.2' &' ./(-2' <*,/(*' (?3'
.(&.03' /,' *;&'' 9 (' &' 1!1&-.!-' /(' 37(!4D;!4>' 1*A' ,(/6' *' =&3*' /=*(' .2*' *&(.2' 0 &
7/*6' /4' .2*' H &.0(*' /,' 2!4>3I' 9 (V 7!;7213' ';/'&41'?
' &' (&.!/4&;!3.!-'!4.*(7(*.&.!/4' /,' .2*' 7*43'#9 ' # ' :?'F
7/70;&(' ,&<;*3' &</0.' .2*' >/13'' , ' 72*<!' 2*' .2*4!&4' 4&6*' ,/('5/0.23'
/(' , '-/4.&!4!4>' 6/(&;'1/-.(!4*3' /=*(' .2*' &>*' /,' 3!0.**4' 2*' -/67;*.!/4'
&41' /.2*(3' /,' .2*' 3&6*' D!41' 2*(*' A&3' &' /,' &' </53' 3!0.**4.2' 5*&(' A&3' .2*' /--&3!/4'
7/*6' *4.!.;*1' A(!..*4'!4' 2/4/0(' /,' /,' &' ,*3.!=&;' &.' A2!-2' .2*' 6&1*' &'
.2*' *;1*(' ,(!-&403' 2*.2*(' .2!3' A&3' &' 1(!4D' /,,*(!4>'./' *(-;*3'&41'*4.*(.&!4*1'
/(' &' 1(&6&' !3' 04-*(.&!4 2!3' ,(!*413' A!.2' A!4*' !3' 2!(' 2!.2*(./'*'
2*' 6*6/(5'/,' 44!03';/4>'30(=!=*1' .2*' A/(D3' 2*' "A(/.*' <*.A**4' VNC' &41'
,&;;' /,' .2*' *70<;!-' =*4'&,.*(' ;!.*(&(5' VNR' &4' *0.(*6*;5' ,0;3/6*' 7&4*>5(!-' /4'
.&3.*' 2&1' .&D*4':0!.*' &'1!,,*(*4.'1!(*-.!/4' 2*/1/3!03' .2*' (*&.' &41' &' <!/>(&725' /,'
2*' A&3' (*=*(*1' &3' .2*' ,&.2*(' /,' &.!4' 7!72&4!03' 2!3' 7(*1*-*33/(' !4' .2*' 3**'
7/*.(5'&41'*37*-!&;;5'&3'2& !4>'1/4*' 60-2' /.2' .2*3*' A(!.!4>3' 2&=*' &' =&;0*' ,/(' .2*'
./*4(!-2' .2*' &.!4';&4>0&>* 2!3./(!&4' *3!1*3' .2*3*' A*' 2&=*' &' -/;;*-F
4411;03' # 1" ' A - ' ' &.!4'
(2*./(!-!&4' &41' 7/*.' *' A&3' </(4' &</0.'
CU ' '!4' .2*' 3/0.2' /,' (&4-*' &41' 1!*1'
!4' V@$' &3' <!32/7' /,' &=!&' 6/4>' .2*'
/.2*(' A/(D3' 2*' "A(/.*' <*.A**4' VNC' &41'
VNR' &4' *0.(*6*;5' ,0;3/6*' 7&4*>5(!-' /4'
2*/1/3!03' .2*' (*&.' &41' &' <!/>(&725' /,'
7!72&4!03' 2!3' 7(*1*-*33/(' !4' .2*' 3**'
/.2' .2*3*' A(!.!4>3' 2&=*' &' =&;0*' ,/(' .2*'
2!3./(!&4' *3!1*3' .2*3*' A*' 2&=*' &' -/;;*-F
</041' .2*6 3*;=*3' <5' &' 3/;*64' /&.2'
./' .2*' 3*("=!-*' &41' 1*,*4-*' /,' .2*!(' -/04.(5

/(' .2*' .A/' ,/;;/A!4>' 5*&(3' .2*5' 3*(=*1' &3' >0&(13' /4' .2*' ,(/4.!*(' ,.*(' .2*' -/67;*' .!/4' /,' .2*!(' .A*4.!*.2' 5*&(' .2*5' A*(*' &1F 6!..*1' ./' .2*' 6**.!4>3' /,' .2*' &33*6<;5' &41' *67;/5*1' !4' ,/(*!>4' 3*(=!-*' 2*!(' 1(*33' A&3' .2*' (" ' &41' .2*'

72 >*3,3' '

72 .3*' 'K01!-!&;' -/0(.' /,' 2!>2' &4.!F :0!.5' &.' .2*43' -/43!3.!4>' /,' ,!,.5"/4*' K01>*3' *;*-.*1' ,(/6' .2*' 4/<;*3.' .2*4!&4' ,&6!;!*3' .' >&=*' 1*-!3!/43' !4' -&3*3' /,' 60(1*(' &.' ,!=*' 1!,,*(*4.' 7;&-*3' 1!,,*(!4>' &--/(1!4>' ./' .2*' -2&(&-.*(' /,' .2*' -&3*' ,' .2*' -(!6*' 2&1' &' (*;6/.6' -2&(&-.*(' .2*' (-2 4' &3;;*03' 7(*3!1*1' # ' (' /;/4'1!1'4/.'&</;!32' .2!3'-/0(.' <0.' 2&41*1' /=*(' ./' .2*' 4*A;5' /(>&4!Q*1' (* 7 >03' !.3' 6/3.' !67/(.&4.' ,04-.!/43 [.2*' 7/A*(' /,' 1*-!1!4>'-&3*3'/,'!4.*4.!/4&;' 60(1*('7/!3/4F !4>' 6&;!-!/03'A/041!4>'&(3/4'&41'.2*';!D*' 2*'4*&(*3.'(*;&.!/43'/,'.2*' 60(1*(*1'7*(3/4' A*(*' </041' <5' (*;!>!/03'3&4-.!/4'./' &=*4>*' 2!3' <;//1' .' .2*' ,04*(&;' &41' &,.*(' .2&.' !4' .2*' 6&(D*.' 7;&-*' .2*5' 0..*(*1' &'3/;*64' 1*404-!&.!/4'A2!-2'<&1*'.2*' 60(1*(*('D**7' &A&5' ,(/6' &;' 70<;!-' 7;&-*3' &33*6<;!*3' &41' 3&4-.0&(!*3' &41' ./' &77*&(' <*,/(*' .2*' -/0(.' 2*' (-2/4' &3!;*03' &,.*(' .2*' -2&(>*' 2&1' <**4' &44/04-*1' &41' (*-*!=*1' (*7*&.*1'.2!3'1*404-!&.!/4' 2*'7(*;!6!4&(5' !4=*3.!>&.!/4'&41'1*.*(6!4&.!/4'/,'.2*7;&-*' A2*(*' .2*' -/0(.' A&3' ./' <*' 2*;1' ,/;;/A*1' &.' .2(**' &77/!4.*1' .!6*3' !4' .2(**' 30--*3F 3!=*' 6/4.23' 2*' -&3*' A&3' 4/.' ,!4&;;5' 1*&;.' A!.2'.!:;' .2*' ,/0(.2' 6/4.2' 4' .2*' ,!(3.' .A/' 1&53' /,' .2*' ,!4&;' .(!&;' .2*' .A/' 7&(.!*3'&,.*('3/;*64;5' .&D!4>'&4'/&.2'-/4F 10-.*1' .2*!(' -&3*' !4' 7*(3/4' 4' .2*' .2!(1' 1&5'K01>6*4.'A&3'>!=*4'!4'-&3*' .2*'&--03*1' 2&1' 4/.' >/4*' !4./' =/;04.&(5'*0!;*' ' 2*' 2&1' 2!3' 7(/7*(.5' A&3' -/4,!3-&.*1' <0.' 2*' A&3' 70(30*1'4/',0(.2*(' 4.*4.!/4&;' 60(!' 1*(' A&3' 704!32*1' A!.2' 1*&.2' 6&;!-!/03' A/041!4>' A!.2' *0!;*'" .2*' 6&4 3' 7(/7*(.5' A&3' -/4,!3-&.*1' !4' </.2' -&3*3' 4' .;6' -/0(.' /,' (*/7&>03' !,' .2*' =/.*3' /,' .2*' K01>*3' A*(*' *:0&;' .2*' &--03*1' A&3' &-:0!.F .*1' ,' .2*' 2/6!-!1*' A*(*' ;*>&;;5' &;;/A*1' 8&3' ,/(' !43.&4-*' .2&.' /,' &4' &10;.*(*(9' /(' ;*>&;;5' !44/-*4.'8&3' !4' 3*;,"1*,*4-*9' .2*' -&3*' (&3 !4=*3.!>&.*1'!4'.2*' *;72!4! 4'&' 3&4-.0&(5'/,' .2*' *;72!-' 7/;;/" &41' /4;5' &' (*;!>!/03'70(!,!-&.!/4'A&3'*0&-.*1' &3*3' /,' 04!4.*4.!/4&;' 2/6!-!1*' 60(1*(' /,' &4' &;!*4' &41' !43.!>&.!/4'./' 60(1*(' A*(*' .&D*4' &.' .2*' &;.*1 4' &' 3&4-.0&(5' /,' &;;&3' 43.!>&.!/4' ./' 60(1*(' A&3' 704!32*1' A!.2' <&4!326*4.' &41' -/4,!3-&.!/4' /,' 7(/7*(.5' .2*' 60(1*(' /,' &4' &;!*4' A!.2' <&4!326*4.

04!4.*4.!/4&;' 60(1*(' A!.2' <&4!326*4.' !6.!;' .2*' D!436*4' /,' .2*' 60(1*(*1'7*(3/4' >&=*' 7*(6!33!/4'./' .2*'3;&5*(' ./' (*.0(4' 4' .2*' .!6*' /,' *6/3.2*4*3' !.' /0;1' 3**6' .2&.' .2*' -&3*3' A2!-2'03*1' ./' <*' 2*&(1' &.' .2*' *;72!4!/..' &41' &;;&1!/4' *(*' 2&41*1' /=*(' ./' .2*' '. ' 203' .2*' 72*.3*' 2&1' /4;5' .A/' -/0(.3' ;*,.' .2*6' .2&.' !4' 2(*&../' &' 7;&-*' !4' .2*' !(&*03' 4*&(' .2*' 3*&' &41' .2*' (5.&4*06' 2*' ,/(6*(' 2&1' /4;5' ./' K01>*' !4' .2*' (&(*' *=*4.' /,' &' 7*(3/4' <&4!32*1' ,/(' 04!4.*4.!/4&;' 2/6!-!1*' <*!4>' -2&(>*1' A!.2' !4.*4.!/4&;' 60(1*(' 3' 2*' 6!>2.' 4/.' 3*.' ,//.' /4' ;&41' 2*' A&3' 2*&(1' 3.&41!4>' !4' &' 32!7' &41' !,' ,/041' >0!;.5' A&3' 704!32*1' A!.2' <&4!326*4.' ,/(' ;!,*' .' .2*' (5.&4*06' &'(*B&('-/0(.'A&3'2*;1'/4'!4&4!F 6&.*'/<K*-.3'&41'&4!6&.3'A2!-2'2&1'<**4'.2*' -&03*' /,' 1*&.2'./' &20 6&4'<*!4>' 2*'7(*3!F 1*4.' /,' .2*' ,/0(';1' /4!-'.(!<*3'(*6/=*1' .2*' /<K*-.'-&(.2*' &0!6&;' /=*(' .2*' </(1*(' > !4' !,' &' 60(1*(' 2&1' <**4' -/6 6!..*1' &41' .2*' ,F ,*41*(' A&3' 041!3-/=*(*1' .2!3' -/0(.' 2&1' ./' 7(/4/04-*';&A,0;'3*4.*0-*'&>&!43.'2!6'f *6' @ ` ` `' ?C"UT" (!3./.;*'$ " ' (" ' ?Ug

72;&;.*3' ' 7

72/(3' 8 B216 _ /=*(3**(3 9' ' </&(1' /,',!=*' 6*6<*(3' &.' 7&(.&'*;*-.*1'&440&;;5' ,(/6' &;;' .2*' -!.!Q*43' .' !3' 3&!1' ./' 2&=*' <**4'*3.&<;!32*1'<5' B-0(>03'/('D!4>' 2*/'* 7/6703'8UUN' 9' 2*' /(!>!4&;' !4.*4.!/4' A&3' .2&.' !.' 32/0;1'>!=*' 1*-!3!/43' !4' 7(!=&.*' 6&..*(3'&41'(B(*3*4.' .2*'&<3*4.' D!4>3' !4' -*(.&!4'/,'.2*!('10.!*3'*37*-!&;;5' .2*' 307*(F !4.*41*4-*' /,' .2*' /,,!-!&;3' &41' /,' 70<;!-' 1!3-!7;!4*' 0.' .2*!(' -!(-;*' /,' &0.2/(!.5' >(&10&;;5' A!1*4*1' .!;;' !.' -&6*' ./' 6*&4' &' 307*(!4.*41*4-*' /=*(' .2*' A2/;*' -/66/4F A*&;.2' !4-2(1!4>' .2*' D!4>3' 2*' *72 (3' 2&1' .2*' (!>2.' /,' (&!3!4>' /<K*-.!/43'&>&!43.' .2*!(' &-.!/43' -&;;!4>' .2*6' ;!D*' /.2*(' /,! /!&;3'./' &--/04.',/(' .2*!(' -/410-.' 704F !32!4>' .2*6' A!.2',!4*3' &41'(*7(!6&413' &41' *=*4' 7(/3*-0.!4>' .2*6' <*,/(*' .2*' 3*4&.*' &41' .2(*&.*4!4>' .2*6' A!.2' 1*7/3!.!/4' &41' 1*&.2' 2*5' A*(*' .2*' /4;5' -!.!Q*43' A2/' A*(*' 4/.' /<;!>*1' ./' (!3*' !4' .2*' D!4>3' 7(*3*4-*' &,&-.' A2!-2' >!=*3'&'>//1' !1*&' /,' .2*' (*;&.!=*' 7/3!.!/4' /,' .2*' .A/' 7&(.!*3' *3!1*3' .2*' 10.5' /,' /77/3!4>' *=*(5.2!4>' A2!-2' .2*5' .2/4>2.' &1=*(3*' .:' .2*' ;&A3' &41' !4.*(*3.3' /,' 7&(.&' .2*5' 2&1',(/6'*&(;5' .!6*3' .2*' (!>2.' /,' 3066/4!4>' .2*' 1*;!<*(&F .!=*' &41';*>!3;&.!=*' &33*6<;!*3' .2*' 6 ' &41' 9 ' ./' 6&D*' 7(/7/3&;3' ./' .2*6' &41' .&D*' .2*' ;*&1' !4' 7(/-**1!4>3' ;*,.' ./' .2*!(' 6&4&>*6*4.' A/' /,' .2*6' (*>0;&(;5' &--/67&4!*1' .2*' D!4>3' /4' .2*!(' -&67&!>43' .' !3' 7(/<&<;*' &;3/' .2&.' .2*5' 2&1' .2*' 307*("

!4.*41*4-*' /,' ,2*' 70<;!-' .(*&30(*' 4' .2*!(' -&7&-!.5' /,' 7(/.*-./(3' /,' .2*' 70<;!-' 1!3F -!7;!4*' .2*!(' &0.2/(!.5' *0.*41*1' !.3*;,' ./' .2*' 6!40.*3.' 1*.&!;3' /,' 7(!=&.*' ;!,*' 4' (*>&(1' ./' .2*' *;/.3' &41' *(;/*-!' !.' A&3' 3.!;,' 6/(*' &;3/;0.*' =*4' /4' &' .2*5' -/0;1' 7&33' 3*4.*4-*' /,' 1*&.2' A!.2/0.' .(!&;' # (4' !67/(.&4.'/--&F 3!/43' &' 6&K/(!.5' /,' .2*!('=/.*3'A&3'(*:0!(*1' .' .2*' *41'/,' .2*!(' &440&;' /,,!-*' /4' A2!-2' .2*5' *4.*(*1' &.' .2*' <*>!44!4>' /,' .2*' % 7&(.&4'5*&(' /('&.' .2*' .!6*' /,' .2*' &0.064&;' *:0!4/0' .2*5' A*(*' ;!&<;*' ./' <*' -&;;*1' ./' &--/04.' <5' .2*!('30--*33/(3' 2*' 5*&(' A&3' 1&.*1' <5' .2*' 4&6*' /,' .2*' ,!(3.' 72/(' /4' .2*' </&(1

72/(03' ' (**D' 2!3./(!&4' </6' &</0.' CNN' '&.' 56*'!4' 3!&' !4/(' *' ;!=*1' ./' 3**' .2*' !4=&3!/4' /,' 3!&' <5' ;*0&41*(' .2*' (*&.' !4' C' !D*' 2*/7/6703' 2*' A&3' &' 707!;' /,' 3 -(.*3' A2/' 3**!4>' .2&.' 2*' A&3' 4/.' ;!D*;5' ./' 30--**1' &3' &' 70<;!-' 37*&D*(' 7*(30&1*1' 2!6' ./' A(!.*' 2!3./(5' *' A&3' .2*' &0.2/(' /,' &' 4!=*(3&;' !3./(5' A2!-2' /6!..*1' .2*' 65.2!-&;' &>*' &41' <*>&4' A!.2' .2*' (*.0(4' /,' .2*' *(-;!13*' !4./' .2*' *;/7/44*3*' .' .(*&.*1' !4' .2!(.5'</!D3' .2*' 2!3./(5' /,' .2*' (**D' &41' <&(<&(!&4' A/(;1' 10(!4>' &' 37&-*' /,' UVN' 5*&(3' *41!4>' !4' CN' ' 2*' ;&3.' </!D' !3' 3&!1' ./' 2&=*' <**4' -/67;*.*1' <5' 2!3' 3/4' *6 72;;03' 2*' A/(D' A&3' -/4.!40*1' !4' .2*' ;*0&41(!&4' 7*(!/1' <5' !5;;03' /,' .2*43' 3& 4' /,' ;&.3*&' &41' *4/1 .03' /,' *(!4.203' .' A&3' 60-2' (*&1' &41' 03*1' ,/('.2*' A*&;.2' &41' *0-*:;*4.' &((&4>*6*4.'/,' !.3 6&.*(!&;' A2!-2' *6<(&-*1' >*/>(&725' *.24/>(&725' 65.2F /;/>5' &41' .2*' 2!3./(5' /,' -!=!;!Q&.!/4' &41' ;!.*(&.0(*' .' 6*.' A!.2' 60-2' 2/3.!;*' -(!.!F -!36' <0.' 2&1' !.3' &16!(*(3' &6/4>' A2/6' A&3' /;5<!03

7!-&3.*' ' 3 (

7!-2&(603' ' (**D' -/6*1!&4' </6' !4' .2*' !3;&41' /,' /3' &</0.' VCN' ' 2*4' /4;5' &' -2!;1' /,' .2(**' 6/4.23' /;1' 2*' -&6*' A!.2' 2!3' ,&.2*(' `;?.2&;j3' &' 7253!-!&4' ./' *>&(&' !4' !-!;5' A2*(*' 2*' 1!*1' &</0.' CVN' &.' .2*' &>*' /,' TN' !D*' 2!3' ,&.2*(' 2*' !3' 3&!1' ./' 2&=*' <**4' 7*(3/4&;;5' &-:0&!4.*1' A!.2' 5.2&>?(&3' &41' A2*.2*(' .2!3' !3' 3/' /(' 4/' 2!3' 72!;/3/72!-&;' &..&!46*4.3' A*(*' 4/.' !4-/43!1*(&<;*' .' A&3' 7!-2&(603' A2/' >&=*' ./' .2*' /(!-' -/6*15' /,' !-!;5' !.3' ;!.*(F &(5',/(6' 2!(.5",!=*' /,' 2!3' 7;&53' A(!..*4' !4' .2*' /(!-' 1!&;*-.' &(*' D4/A4' ./' 03' <5' .2*!(' .!.;*3' &41' &' ,*A' 6*&>(*' ,(&>6*4.3' 2&=*' 30(=!=*1' 2*5' 1!,,*(*1' ,(/6' .2*' ..!-' -/6*15' !4' 2&=!4>' 4/' -2/(03' 2*!(' 30<K*-.3' A*(*' .&D*4' 7&(.;5',/(6' .2*' 3./(!*3 /,' >/13' &41' 2*(/*3' A2!-2' .2*5' <0(;*3:0*1' &41' -&(!-&.0(*1' &41' 7&(.;5',/(6';!,*' 2*' 7;/.3' 3**6' ./' 2&=*' <**4' 3!67;*' &41' .2*' &-.!/4' (&7!1' 2*' 72!;/3/72!-&;' ;*&4!4>3' /,' 7!-2&(603' &(*' 32/A4' !4' 406*(/03' 3&5F !4>3' /,' 1**7' 7(&-.!-&;' A!31/6' ;&./' 3&!1' .2&.' 7!-2&(603' A&3' .2*' 7(!4-*' /,' -/6*15' &3' /6*(' A&3' /,' .(&>*15' &' 3.(!D!4>' .*3.!F 6/45' ./' .2*' 7*(,*-.!/4' /,' 2!3' -/67/3!.!/43' !4' .2*!(' /A4' ;!4*' 4' 2!3' 65.2!-&;' -/6*15' 2*' A&3' !6!.&.*1' <5' ;4?;?-203' /,' 5(&-03*

7!-2*((1.14!&' ' ((7

7!-.*.03'8 (' 9 / ' (**D' 72!F ;/3/72*(' </(4' &.' ,*(&7 ;!3' !4' 2(5>!&' *' ;!=*1' &' ;/4>' .!6*' !4' /6*' &3' &' 3;&=*' !4' .2*' 2/03*' /,' 7&72(/1;.03' &',&=/0(!.*' /,' *(/' 6&4-!7&.*1' <5' 2!3' 6&3.*(' 2*' <*-&6*' &' 7(/,*33/(' /,' .2*' ./!-&;' 353.*6' A2!-2' 2*' 2&1' ;*&6*1' ,(/6' .2*' ;*-.0(*3' /,' 03/4;03' 0,03' 2*4' .2*' 72!;/3/72*(3' A*(*' *07*;;*1',(/6' /6*' <5' /6!.!&4' !4' OP' ' 7!-.*.03' A*4.' ./' !-?7?;!3' !4' 7!(03' A2*(*' 2*' ;!=*1' &3' .2*' 6&3.*(' /,' &' 3-2//;' 04.!;' .2*' (*!>4' /,' &1(!&4'>EEM' ' *' ,/(6*1' 406*(/03' 1!3-!7;*3' <5',(**' -/4F =*(3&.!/43' &,.*(' .2*' 6&44*(' /,' /-(&.*3' 6/4>' .2*3*' A&3' ((;&403' ./' A2/6' A*' /A*' &4' &--/04.' /,' 7!-.*.03' 1/-.(!4*' ,/(' .2*' 6&3.*(' 2!63*;,';*,.' 4/.2!4>' !4' A(!.!4>' 2*' 6&!4' 7/!4.' /4' A2!-2' 2*' ;&!1' 3.(*33' A&3' .2*' !41*7*41*4-*' /,' .2*' 206&4' 6!41' /,' &;,' *0.*(4&;' -!(-063.&4-*3' 30-2' <*!4>' 4/.' !4' /0(' 7/A*(' 2!3',(**1/6' !3' ./' <*' &..&!4*1' <5' 7&.!*4-*' &41' (*404-!&.!/4' 2*' 10.5' /,' 6&4' !3' ./' ,!41' &;' 2!3' 2&77!4*33' A!.2!4' 2!63*;,' &41' .2*' 7/A*(' /,' A2!-2' 2*' 32/0;1' <*' 6/3.' !4' &A*' !3' .2*' 1*!.5' !4' 2!3' /A4' <(*&3.

7!-0(03'8 (' 9 . ' (**D' 72!F ;/3/72*(' ,/041*(' /,' .2*' 7!-0(*&4' 3-2//;' A2!-2' A&3' 3/' 4&6*1' &,.*(' 2!6' *' A&3' </(4'=PG' '!4' .2*' ..!-'1*6*' /,' &(>*..03' &41' 37*4.' 2!3' *&(;5'5*&(3' !4' &6/3' A2*(*' 2!3',&.2*(' 2&1' 3*..;*1' &3' &' (# " ' (**D' 2!;*' 3.!;,' 5/04>' 2*' (*.0(4*1'./' .2*43' &41' .2*(*' &-:0!(*1' <5' !41*7*41*4.'(*&!4>' &'-/67(*2*43!=*' D4/A=F ;*1>*' /,' 7(*=!/03' 72!;/3/72!*3' 4' =EU' # ' =GH' 2*' <*>&4' ./' .*&-2' 72!;/3/725' ,!(3.' 4' 5.;;*4*' &41' &,.*(A&(13' !4' &67" 3 -03' ,.*(' =UP' 2*' -&((!*1' /4' 2!3' 7(/F ,*33!/4' &.' .2*43' *(*' 2*' </0>2.' &' >&(1*4' !4' A2!-2' 2*' ;!=*1' !4' (*.!(*6*4.' !4' &' =*(5' 6/1*3.' &41' 3!67;*' 3.5;*' 30((/041*1' <5' 2!3' <(/.2*(' &41' 2!3',(!*413' *' 1!*1' ;' ' ?DE' 'MPH' /,' -&;-0;03' &,.*(' .*((!<;*' 30,,*(!4>3' 0.' ./' .2*' ;&3.' 6/6*4.' 2*' 4*=*(' ;/3.' .2*' .(&4:0!;' 3*(*4!.5' A2!-2' 2&1' -2&(&-.*(!Q*1' 2!3' A2/;*';!,*' 0-2' A&3' 2!3

.!0.2/(!.5' A!.2' 2!3' 1!3-!7;*3' .2&.' 4/4*' /,' .2*6'=*4.0(*1'./' 6&D*' &45'!44/=&.!/4'!4'2!3' 1/-.(!4*3' !3'3-2//;'-/4.!40*1'./',;/0(!32' !4' .2*43' 041*(',/0(.**4' 6&3.*(3',/(' @@U'5*&(3'' &41' 60-2',/4>*('!4'./.2*(' -!.!*3' !3' A(!.!4>3' A*(*' (*6&(D&<;5' 406*(/03' &41' !4' 7&(.3' =*(5'-/67(*2*43!=*' 2*5' A*(*'&16!(*1',/(' .2*!(' -;*&(4*33'<0.'.2*!(',/(6'A&3',/041',&0;.' A!.2' &3' .//' -&(*;*33' 7!-0(03'03*1'./' 3&5'216 3*:,' .2&.'A(!.!4>' >&=*'216'4/'.(/0<;*' ;;' .2&.'(*6&!43'/,' %.2*6'f*0-;03!=*'/,'A2&.'6&5'<*'>;*&4*1',(/6' :0/.&.!/43'!4' ;&.*('GA(!.*(3g'!3 8$9' &'-/6F 7*41!06' /,' 2!3'1/-.(!4*'!4',/(.5",/0('32/(./ (/(/7/3!.!/43'GA(!..*4' ,/(' 2!3' 3-2/;&(3' ./' ;*&(4'<5'2*&(.' 2!3'A*'603.'2/A*=*('(*F 6*6<*('!3'4/.'7(*3*(=*1'!4'!.3'/(!>!4&;',/(6' 8@9' /6*',(&>6*4.3'4/.'!4-/43!1*(&<;*'<0.' 60-2'60.!;&.*1'&41'=*(5'!4-/67;*.*'/,'2!3' >(*&.'A/(D' "' > ' !4' .2!(.5'<//D3' 2*3*' &(*' 7(*3*(=*1'!4' .2*' *(-0;&4*&4' : ' P g 2(**';*..*(3'2&=*30(=!=*1,(/6' .2*'<'B'/,'2!3'-/((*37/41*4-*'<*3!1*3'2!3' A!;;' /(' 2!3'353.*6' ' 1' % 7!>!!0;!&' 8 (**D9' 2*' (!>2.'/,'-/4F .(&-.!4>'&'=&;!1'6&((!&>*'A!.2'&;;'!.3';*>&;' -/43*:0*4-*3' .' A&3' 7/33*33*1'/4;5'<5' !.!Q*43'/,'.2*'3&6*'3.&.*' &;!*43'-/0;1'/4;5' &-:0!(*' !.'<5'37*-!&;' ;*>&;' &0.2/(!Q&.!/4' ' &'1*-(**'/,'.2*'7/70;&(' &33*6<;5' .' .2*43'*=*4'.2*' '/(' (*3!1*4.'&;!*43' "A*(*'*0-;01*1',(/6'!.' 8 /6!#' 4K 9 7;>14;' 2*'1*3-*41&4.3'/,'.2*'3*=*4 (!4-*3' A2/' 6&(-2*1'&>&!43.' 2*<B >!,.;*03'3/4'/,' 1(&3.03' ;-63*/4'3/4' /,' 672;(&03' ,6*1 3'3/4'/,' 51*03'K (?6&-203'3/4',' &(.2 4 73*03' .2 4>' d 03'3/4' ,' &7&4*03' 2*(3&41*('3/4'/,' !54!-*3' 0(5&;03'3/4'/,' *-!3.*03' /'&=*4>*'.2*'3;&!4'.2*5'6&(-2*1'&>&!43.' 2*<*3'041*(.2*';*&1*(32!7'/,' 1(&3.03' .*4'5*&(3'&,.*(.2*',!(3.' 2*<&4'A&(' # " ' 4;!D*'.2*!(' &4-*3./(3'B-5' 3.&(.*1'A!.2'.2*'2&77!*3.'&037!-*3' 2*' /(&-;*'/,' 672!&(&03'&.' 2*<*3'7(/6!3*3' .2*6'=!-./(5'&41'&'2&775'(*.0(4'./'&;;' .2&.'!3'*0-*7.' >!&;*03'.2*'3/4'/,' 1(&3F .03'.2*'/4;5'A&((!/(' A2/'*3-&7*1'!4'.2*' 7(*=!/03'A&(' 4'.2*'1*-!3!=*'<&..;*'&.' G ;!3&3')>!&;*03',&;;3'<5'.2*'2&41'/,';</2 1&6>3'3/4'/,' .-;*3'&41';*&1*(' /.2*(' &41'6!3-*;;&4*/03'70(7/3*3' 2*<&43' &/1&6&3'!3'216 3*;,';3;&!4'<5' ;-6.*/4' &(.'/,'.2*'1*,*&.*1'2*<&43' <5'.2*'&1=!-*'/,'*!(3;&3',;5'<*,/(*'.2*' -!.5'!3'.&D*4'&41'3*..;*'!4'.2*'.*((!./B'/,' *3.;&*/.!3'!4' 2*33&;5'/(' &6/4>'.2*' ;5'# (!&4' 4-2 ;!'A2*(*'.2*'>/=*(46*4.'!3'!4' .2*'2&413'/,'1*3-*41&4.3'/,' &1603'83**' ' 2*'=!-./(3'2&=!4>'-/4:0*(*1 &41'1*3.(/5*1'.2*'-!.5'3*4&'.4*' *3.'7&(.' /,'.2*'</!.5'&--/(1!4>'./'.2*!(' =/A'./' .2*' *;72!-'/(&-;*' 2*(3&41*(' &41'2!3' ,&6!;5'&(*'2*4-*,/(.2'.2*'(0;*(3'/,' 2*<*3 7!>(&6' (/7*(;5'!_'&4'!43-(!7.!/4'30-2' &3'A&3'/,.*4'A(!..*4' 7/4'&'./6<'&'=/.!=*' /,,*(!4>'&'7(*3*4.'&'A/(D'/,'&(.'&41'.2*' ;!D*'./' 1*3-(!<*'!.3' -2&(&-.*(' 43-(!7F .!/43'/,'.2!3'3/(.'A*(*',(/6'*&(;5'.!6*3'70.' !4./' 6*.(!-&;',(/6'&41'.2*'A(!.*(' >*4*F (&;5'.(!*1'./'70.'>//1'3*43*'&41'37!(!.'!4./' .2*6' 2*5'A*(*'>*4*(&;5'.2/0>2'4/.' &' &53'A(!..*4'!4'.2*'*;*>!&-'6*.(* 2*' >(*&.*3.'6&3.*(' /,' *7!>(&6'A&3' !6/4!1*3'/,' >?3'.2*'&0.2/(' /,'&;6/3.' &;' .2*' 3*70;-2(&;' !43-(!7.!/43' /4' .2*' A&((!/(3' A2/',*;;' !4' .2*' *(3!&4' A3&, !3';!4*3'&(*'(*6&(D&<;*',/(' (*7/3*'-;*&(F 4*33'&41',/(-*'</.2'/,' .2/0>2.'&41' *OF 7(*33!/4' !-.!.!/03' !43-(!7.!/43' A*(*' /,.*4' (!..*4'-/4.&!4!4>'<(!*,'-(!.!-!3 63' /4'-*;*<(&.*1'6*4'&3'7/*.3'72!;/3/72*(3' &(.!3.3'&41'.2*!(' 7(/10-.!/43' 2*',(6'/,' .2*' *7!>(&6'A&3'&;3/'03*1'./'*6</15'!4' -/4-!3*' &41'7/!4.*1';&4>0&>*' .2*' -;*=*(' !1*&3'/(' .2*' 7&33!4>'6//13'/,'.2*'A(!.*(' /,.*4' =31.2'&'.!4>*'/,'A!.'/(' 3&.!(*' 2*' /--&3!/4&;' *7!>(&6'A&3'&'=*(5',&=/0(!.*' ,/(6'/,'-/67/3!.!/4'GA!.2'.2*' ;*0&41(!&4' 7/*.3'&41'(*6&!4*1'3/'1/A4'./'.2*';&.*3.' .!6*3' /6*' %A(!.*(3' !41**1' 1*=/.*1' .2*63*;=*3'*4.!(*;5'./'!.' &45'/,'.2*' -2/!-*3.'>*63'/,' (**D';!.*(&.0(*'&(*'./' <*',/041'!4'.!*'*7!>(&63' 2*'*7!>(&6F 6&.!3.3'03*1'/.2*(' 6*.(*3'<*3!1*3'.2*' *;*>!&-'*37*-!&;;5'.2*'!&6<!-' 4';&.*(' .!6*3'6/(*'-/67;*0'&41'&;6/3.';5(!-&;' 6*&F 30(*3'A*(*'*67;/5*1' 2*' (**D' 4.2F /;/>5'2&3'7(*3*(=*1'C VNN'*7!>(&63'/,' .2*' >(*&.*3.'=&(!*.5'!4'-/4.*4.3'&41',/6'.2*' 2&41'/,'6/(*'.2*'/4'7/*.3'&' ,K '' ## ' 6/4>'.2*3*'&(*' ,/041'3/6*'/,' .2*'6/3.'-*;*<(&.*1'4&6*3'/,'&4-!*4.'&41' /,';&.*(' .!6*3' '>(*&.'406<*(' .//' &(*' ,/041'!4'!43-(!7.!/43 ,'&;' .2*' (**D'=&(!*.!*3'/,';5(!-'7/*.(5' .2*'*7!>(&6'A&3'*&(;!*3.'A*;-/6*1'&.' /6*' .';!=*1' /4' !4' &4' 04!4.*((07.*1' *0!3.*4-*' ,(/6' 44!03' .!;' .2*' ;&.*3.' .!6*3'<)!!B' *67;/5*1'3/6*.!6*3',/(' !43-(!7.!/43'3/6*F .!6*3',/(.2*('/41'6!3-*;;&4*/03'70(7/3*3' 4' .2*'3*-/41'2&;',/' .2*'$3.'-*4.0(5' &(.!&;'2&41;*1'!.'!4'=&(!/03',/(63'&41' A!.2'.2*'7/A*(/,'&'6&3.*(' *'&;3/'2&=*'&' -/;;*-.!/4',*7!>(&63'<5' 00/(;03'8?.2'-*4F .0(5' -!' &45',/'30-2'7/*63'&(*'7(*F 3*(=*1'/4'!43-(!7.!/43'<*3!1*3'&'>(*&.' :0&4F .!.5'!4' 6&403-(!7.'A2!-2'!4'6/1*(4'.!6*3' 2!=*'<**4'-/;;*-.*1'!4./'&' &.!4' 4.2/;/>5

7!D;*(13 ' A (' 8 .2*4!&49 7!;*4!13 ' (

7! 6 ;*.!*' 8/=*(3**(3 9' 2*' 4&6*' >!=*4' &.' .2*43' ./' -/ 6 6!33!/4*(3' 4/ 6!4&.*1' &3' /--&3!/4' 6!>2.' (*:0!(*' ,/(' .2*' 307*(!4F .*41*4-*' /,' 1*7&(.6*4.3 ' /6*' /,' .2*3*' -/ 6 6!33!/4*(3' A*(*' (*>0;&(;5' *;*-.*1' *=*(5' 5*&(' &3' 1 ' .2*' .*4' ' /,' .2*' A2&(=*3 ' A2/' A*(*' (*37/43!<;*' ,/(' .2*' -&(*' /,' .2*' 32!73' /,' A&(' &41' *:0!76*4.3' 3./(*1' !4' .2*' 1/-D3*' &41' .2*' .*4' -/ 6 6!3F 3!/4*(3' /,' .2*' 9 "' A2/3*' 10.5' !.' A&3' ./' *4,/(-*' .2*' ;&A3' (*;&.!=*' ./' 10.!*3' &41' -/ 6 6*(-*' /(' .2*' -/ 6 6!33!/4*(3' /,' .2*' (*=*40*' ' &

7;6*.2*43 ' (/.2*(' /,' (<6*.2*03' &41' 203<&41' /,' &41/(&' # ' &)

7!4!D;?4' 8 (**D9' ' 7(!Q*' 256 4' 304>' <5' .2*' -2/(03' !4' 2/4/0(' /,' .2*' =!-./(3' &.' %62* >(*&.' 4&.!/4&;'>&6*3

7!/4*' ' ( )

7!3D5(3' ' ? 7!3.&.*3' ' ?)

7!.2&;&6!/4' 8 (**D9' 2*' A*11!4>'' 256 4' 304>' <*,/(*' .2*' <(!1&;' -2&6<*(' <5' &' -2/(03' /,'5/0.23'&41' 6&!1*43

7!.!6!&' 8 (**D9' 2*' ,0;;' 7/33*33!/4' /,' -!=!-' 7(!=!;*>*3' .2*' /77/3!.*' /,'

7?456V3' 8 (**D9' (/7*(;5' .2*' 7*(3/4' &,.*(' A2/6' &45.2!4>' !3' 4&6*1' 2!3' A&3' !4' =&(!/03' (**D' 3.&.*3' .2*' 04/,,!-!&;' .!.;*' /,' .2*' 6&>!3.(&.*3' &,.*(' A2/6' 8!4' 1*,&0;.' /,'&' >*4*(&;;5' (*-*!=*1' 3.&41&(1' /,' -2(/4/F ;/>59' .2*' 5*&(' A&3' 1*3!>4&.*1' 4' .2*43' .2!3' A/0;1' <*' .2*' ,!(3.' (-2/4' !4' 7&(.&' .2*' ,!(3.' 72/(' !4' (>/3' .2*' 7(!*3.*33' /,' *(&' 2*4' .2*' (&.' .2*43' A*(*' *4(/;;*1' !4' .2*' ;!3.' /,' .2*' -!.!Q*43' A2/' -/0;1' <*' -&;;*1' /0.',/(' 6!;!.&(5' 3*(=!-*' .2*' 4&6*' /,' .2*' ,!(3.' &(-2/4' /,' .2*' 5*&(' A&3' &..&-2*1' 41' A2*4' .2*' -!.!Q*43' /,'=&(!/03' &>*3' A*(*' 306 6/4*1' ./' 6!;!.&(5' 3*(=!-*' &' (*,*(*4-*' A&3' 6&1*' ./' .2*' &(-2/4' ": ' 041*(' A2/6' .2*5' 2&1' <**4' /(!>!4&;;5' *4F (/;;*1' 2*' &4-!*4.' 2*(/*3' A2/' >&=*' .2*!(' 4&6*' ./' .2*' .*4' .(!<*3' /,' ;;3.2 4*3' &41' .2*' 2*(/*3' A/(32!77*1' <5' .2*' 1*6*3' A*(*' &;3/' -&;;*1' ": " ' 2*' 3.&.0*3' /,' .2*' ,/(6*(' A*(*' !4' .2*' 6&(D*.' 7;&-*' &41' !.' A&3' 4*&(' .2*6' .2&.' /,! -!&;' 4/.!-*3' A*(*' 70.' 07' f (!3./.;*' $ " ' ' (" ' V g

7/7*43' /4' /,' 3*!1/4' &41' &4 -*' .2*' 1&0>2.*(' /,' : $A) ' <(/.2*(' /,' ;/*03' *' 6!>(&.*1' ,(/6' 2*33&;5' ./' !-5/4' A2*(*' 2*' <*-&6*' D!4>' *' A&3' D!;;*1' <5' 5-03' ,/(' .2*' 3&D*' /,' 4.!<7*' A2/' !.' A&3' &;;*>*1' A&3' 6/.2*(' /,' L*.203' <5' 2!6 7/7.3' ') 713' 8$9' 6 ' &45' !41!-&.!/43' 7/!4. ./' .2*' ,&-.' .2&.' .2*' /;1*3.' 7/*.(5' /,' .2' (**D3' A&3' -/44*-.*1'' A!.2' .2*' A/(32!7' /' .2*' >/13' &41' .2&.' (*;!>!/03' 7/*.(5' /,' !6 53.!-&;' D!41' A&3' -/ 6 7/3*1' <5' .2*' 7(!*3.!/,' .2*' 2(&-!&43' &' 6 03!-&;' &41' 7/*.!-&7*/7;*' &41' 1!,;,03*1' !4' /;1' .!6*3' .2(/0>;' /(.2*(4' (**-*' 2*' A/(32!7' /,' .2' 03*3' A&3' .203' 1*(!=*1',(/6' .2*' 2(&-!&43' A2/' !4' ;&.*(' .!6*3' 2&1' 1!3&77*&(*1',(/4' (**-*' (/7*(' &41' &--/(1!4>;5' .2*' /;1*3' <&(13' A2/3*' 4&6*3' &(*' D4/A4' ./' .2!' (**D3 [' (72*03' 033*03' 06/;703' 2,.65(;3 [&(*' 3077/3*1' ./' 2&=*' <**!' 2(&-!&43' &;3/' 2*' -0((*4.' !1*&3' /4' .2' 4&.0(*' &41' &-.!/4' /,' .2*' >/13' .*41*1' 6/(' &41' 6/(*' ./' .&D*' .2*' ,/(6' /,' 7/*.!-&' 65.23' (*37*-.!4>' .2*!(' <!(.2' &-.!/43' &6' 30,,*(!4>3' 41' .203' .2/3*' -/67/3!.!/43' /,' A2!-2' &4' !1*&' 6&5' <*' 1*(!=*1',(/(' 3/6*' /,' .2*' 3/"-&;;*1' /6*(!-' 2564 3' >(&10&;;5' &330 6*1' &4' *7!-' -2&(&-.*(' ' -/0(3*' /,' .!6*' .2*' *7!-' A(!.*(3' .2(*A' /,' .2*!(' -/44*0!/4' A!.2' (*;!>!/4' &41' 3.(0-D' /0' !41*7*41*4.';!4*3' /4,!4!4>' .2*63*;=*3' 4F ;/4>*(' ./' .2*' 65.23' &</0.' .2*' >/13' .2*' -*;*<(&.*1' .2*' 2*(/!-' 1**13' </.2' /,' 65.2!-&' &4.!:0!.5' &41' /,' .2*' !6 6*1!&.*' 7&3.' 203' !4' .2*' /6*(!-' 1*3-(!7.!/4' /,' .2*' *7!-' &>*' A2!;*' .2*' <&(13' 2*6!03' &41' *6/1/-0' &77*&(' &3' ,&=/0(!.*3' /,' .2*' >/13' ./' A2/4' .2*5' &(*' !41*<.*1',/(' .2*' >!,.' /,' 3/4>' .2*' &(*' 4/.' &..&-2*1' ./' &45' 7&(.!-0;&(' A/(32!7' 2*' 30<K*-.3' /,' .2*!(' 3/4>' &(*' 4/.' /4;' 3./(!*3' &</0.' .2*' >/13' 30-2' &3' .2*' ;/=*' /,' (*3' &41' 72(1!.*' <0.' .2*' *=*4.3' /(*-*4.' .!6*3' .2*' -/4:0!3.' /,' (/5' <' 6*&43' /,' .2*' A//1*4' 2/(3*' &41' .2*' .(&>!-&' (*.0(4' /,' .2*' -23*&43',(/6' (/5' !4>*(' ;!D*' .2*3*' &77*&(!4>' &.' 70<;!-' ,*3.!=&;3' &41' &.' .2*' .&<;*3' /,' 7(!4-*3' ./' *4.*(.&!!' .2*' >0*3.3' A!.2' .2*!(' ;&53' 603.' 2&=!' *0!3.*1' *&(;5' !4' (**-*' (/7*(' 0.' !' A&3' .2*' /4!&4' (**D3' /,' 3!&' !4/(' A2X ,!(3.',0;;5' 1*=*;/7*1' .2*' -&7&-!.!*3' /,' *7!8 7/*.(5' 5';/4>' 7(&-.!-*' *0.*41!4>' 7(/<' &<;5' .2(/0>2' -*4.0(!*3' &' >(&10&;' 7(/>(*3!' A&3' 7(/<&<;5' *,,*-.*1',(/6' 32/(.' ;&53' .8 ;/4>' *7!-' 4&((&.!=*3'' &41' &.' .2*' 3&6*' .!6!' &' .(&1!.!/4' 1*;!=*(*1',(/6' 6&3.*(' ./' 3-2/;&(' 2&41*1' /4' &41' 7*(,*-.*1' .2*' /0.*(',/(6' /(' 3.5;*' &41' 6*.(*' 203' &</0.' TNN' ' (' *7!-' 7/*.(5' A&3' <(/0>2.' ./' !.3' 2!>2*3.' 7*(' ,*-.!/4' <5' .2*' >*4!03' /,' /6*(' .2*' (*70.*!' &0.2/(' /,' .2*' ;!&1' &41' 1533*5' ,.I' /6*(' !.' 3&4D'' 4*=*(' ./' (!3*' &>&!4' ,(/4' .2*' 2*!>2.' ./' A2!-2' 2*' 2&1' (&!3*1' !. .!3' .(0*' .2&.' !4' .2*',/;;/A!4>' -*4.0(!*3' 3 3*(!*3' /,' *7!-3' 6/(*' /(' ;*33' -/67(*243!=*' A*(*' -/67/3*1' <5'7/*.3' /,' .2*' /4!-' 3-2//

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>(&725 77!&4 /4 &4>;!4> &41 &4 !6!"

.=&43;&.*1 (&.03 /;06*:;& A(/.*& 7/*6 /4 >&(1*4!4>* &4 04D4/A4 &0.2/(83&!1 ./ <* 0-!;!039 .2* ! " 2* (1 -*4.0(5 7(/10-*1 .2* 6*1!-&;7/*6 /; &6 6/4!-03 *(*403 &41 .2&./ ; `6`3!* &443 /4 204.!4> 4 .2* C.2 A* 2&=* 03 4!03 60-2 /; A2/3* A/(D !3 1!1&-.!- &;;&1;03 /4 &>(!-0;.0(* &4 &1&7.&.!/4 /; (&.03 &41 /; !/453!03 *(!*>*.*3 <5 =!*403 A!.2 &2 1*3-(!7.!/4 /; .2* 3*&* -/&3.3 /; .2* D4/A4 A/(;1 !4 !&6<!-3 !4 .2* V.2 <*3!1*3 3/6* /; ;&01!&4 3 7!*-*3 &2 1*3-(!7.!/4 <5 0.!;!03 &6&.!&403 !4 *;*>!&-3 /; 2!3 (*.0(4 2/6* 2* </!D /; !/453!03 *(!*>*.*3 A&3 &1&7.*1 <5 (!3 -!&4 !4 .2* ?.2 -*4.0(5 -/;;*-.!/4 /; 7(/=*(<3 <*&(!4> .2* 4&6* /; &./ <*;/4>3 ./ .2* C.2 -*4.0(5 4 6/3./ ; .2*3* -/6 7/3!.!/43 .2* 6*.(!-&; ,/(6 !3 &2 6*(* 3*. / , &41 !4 .2* 3-2//;=*(3*3 /; .2* >(&6 6&(!&43 &3 !4 .2/3* <5 *(*4.;&403 &0(03 /4 6*.(*3 <5 &4 &4/456/03 &0.2/(/4 (2*./(!-&; ,!>0(*3 &41 /4 A*!>2.3 &41 6*&30(*3 .2*(* !3 4/ 7(*.*4-* /; 7/*.(5 &.&;;

7.;;14*3 8 &3.*(3 /; .2* *&3.9 2* /,,!-* /; -7..L/ A&3 -(*&.*1 $T? ./ (*F ;!*=* .2* /4.!,!-*3 .2 A&3 ,(/6 .2* ,!(3. /7*4 ./ 7;*<*!&43 &41 -/0;1 <* 2*;1 A!.2 .2* >(*&. /,,!-*3 /; 3.&.*2* ,!(3. 10.5 /; .2* " A&3 ./ 7(/=!1* .2* <&4:0*.3 # /; .2* &7!./;!4* 1*!.!*3 83** ( ) & 4 ;&.*(.!6*3 .2*5 2&1 &;3/ ./ 7(/=!1* ,/(&41 307*(!4.*41 .2* 70<;!-*4.*(.&!46*4.3& /; .2* 7*/7;* A2*4 .2* 3*4&.* 1!4*1 /4 .2* &7!./; 0-2 *4.*(.&!46*4.3 A*(* &;A&53 7(/=!1*1 &. .2* >&6*3 >!=*4 <5 7(!=&.* !41!=!10&;3 /(<5 .2* 3.&.*; /4 /--&3!/43 /; (*;!>!/03 ,*3.!=&;3 1*1!-&.!/43 /; .*67;*3 &33067 .!/43 /; /,,!-* .(!06723 ,04*(&;3 <!(.21&53 !4 .2* !67*(!&; 2/03*2/;1 &41 .2* ;!D* 2* $ 1 " -/43!3.*1 /(!>!4 &;;5 /; .2(** 6*6<*(3 # " &41 &,.*(A&(13 /; 3*=*4 & " &4&6* A2!-2 !. (*.&!4*1 *=*4 &,.*(&*3&(2&1 (&!3*1 .2* 406<*(./ .*4 .3 *0!3.*4-* -&4 <* .(&-*1 1/A4 ./ .2* *41 /; .2* C.2 -*4.0(5 :0!((;&) 3& :0;.*3 82/(3*6*4 /(D4!>2.39 2* A*(* (!>!4&;;5 &(*&; 1!=!3!/4 /; .2* /6&4 &(65 .2* <*>!44!4> /; .2* D!4>;5 7*(!/1 .2*5 A*(* -&;;*1 &41 .2*!(406<*(!3 3&!1 ./ 2&=* <**4 NN -2/3*4 !4*:0&;7&(.3 (/6 .2* .2(**.(!<*3 /; .2* &643*3 !.!*3 &41 0-*(*3 204F 1(*1 ,/(6*1& " *&-2 " <*!4> 4&6*1 &,.*(.2* .(!<* ,(/6 A2!-2 !. A&3 .&D*4 2!(.5 6&1* &41 .*4 A*(* 041*(.2* -/66&41 /, & A2!;* .2* A2/;* -/(73 A&3 -/66&41*1 <5 .2* M " &(!4> .2* -/0(3* /; .2* D!4>;5 7*(!/1 .2* </15 /; A&3 !4-(*&3*1 ./ 3!0 " &41 .2* -/4F 3.!.0.!/4/ *(=!03 0;;!03 ,!4&;;5 (&!3*1 !. ./ *!>2.**4 2*4 .2* .A*;=* 4*A -*4.0(!*3 A*(* ,/(6*1 -/43!3.!4> / .2*(!-2*3 7*(3/43 !4 .2* 3.&.* A2/3* !4-/6* *0-**1*1 .2&. / .2* ,!(3. -;&33 !4 .2* -*4303 .2* -/(73 / ;/3. .2* *0-;03!=*;5 7&.(!-!&4 -2&(F &-.*(A2!-2 2&1 2!.2*(./ 1!3.!4>0!32*1 !. .2* 3&6* .!6* !.3 6!;!.&(5 !67/(.&4-* A&3 1!6!4!32*1 &3 !.4/ ;/4>*(,/(6*1 .2* ,!(3. (&4D <0. .//D 07 &7/3!.!/4 /4 .2* A!4>3 /; .2* ("-# 2* 2/A*=*((*.&!4*1 </.2 !4 .2* 3.&.* &41 !4 .2* &(65 .2*!(7*(3/4&; 1 4 .2* .2*5 =/.*1 ,!(3. &41 !4 " /; .2*!(/A4 2*5 A*(* .2* 6/3.1!3.!4>0!32*1 .(//73!4 .2* &(65 / /.2*(3/;1!*(3 A*(* !4 & 7/3!.!/4 ./ D**7 .A/ 2/(3*3 &41 & >(//6 &7!*-* & -/3.;5 ;000(5 &;.2/0>2 .2*5 (*-*!=*1 &4 &;;/A&4-* ,/(.2* 70(-2&3* &41 D**7 /; .2*!(2/(3* ,*(.2* !4.(/10-.!/4 /; .2* 7&5 353.*6 .2*5 (*-*!=*1 .2(** .!6*3 &3 60-2 &3 .2* /(1!4&(5 (//73 /4 /--&3!/4 /; & .(!0672 .2(** .!6*3 .2* /(1!4&(5 32&(* /; </!.5 &41 &. .2* ,/041&.!/4 /; & -/;/45 &6 0-2 ;&(>*(&;;/.6*4. .2&4 .2* /(1!4&(5 -/;/4!3. 2* $ RNN / (A2/3* 2/(3* A&3 70(-2&3*1 &41 D*7 .<5 .2* 3.&.* A*(* -2/3*4 *=*(5 ,!=* 5*&(3 &. .2* -*4303 2* *;*-.!/4 A&3 -&((!*1 /0. !4 % .2* (*70<;!-&4 7*(!/1 /(!>!4&;;5 <5 .2* -/430;3 <0. !4 ;&.*(.!6*3 <5 .2* -*43/(3 ,*(.2* >*4*(&; -*4303 A&3 -/67;*.*1 .2* -*43/(3 7(/-**1*1 ./ (*=!*A .2* & 1" 2*5 A*(* &((&4>*1 &--/(1F !4> ./ .2*!(.(!<*3 &41 *&-2 /, .2*6 ;*&1F !4> 2!3 2/(3* <5 .2* 2&41 7&3 3*1 <*,/(* .2* .(!<04&; /, .2* -*43/(3 !4 .2* ,/(06 ;; A2/ 2&1 3*(=*1 .2*!(.!6*5 &41 A2/ A*(* 7253!-&;;5 !4-&7&-!.&.*1 (*-*!=*1 .2*!(1!3-2&(>* ,&4 A*(* 01>*1 04A/(.25 /, 2!3 7/3!.!/4 2* A&3 1!36!33*1 A!.2 .2* A/(13 H *;;5/0(2/(3* I #= " ,.2*(* A*(* 4/.2!4>&>&!43. 2!6 2* A&3 7&33*1 /4 A!.2 .2* A/(13 + 8H ;*&1 5/0(2/(3* 7&3. I 9% 2* =&-&4-!*3 A*(* .2*4 ,!;;*1 07 A!.2 30!.&<;* -&41!1&.*3 &41 .2* 4*A;!3. # (*&1 &;/01 4 ;&.*(.!6*3 .2* A2/3* 4&6* A&3 ,!(3. (*&1 /0. A&3 -&;;*1 " # (0(!4> .2*!(.!6* /, 3*(=!-* 83*.&."$U"C?9 .2* A*(* <*041 ./ 3*(=* !4 & 406<*(

%/' -&67&!>43 4/.' *0-**1!4>' .*4' 2*!(' 3*(=!-*' *07!(*1' .2*5' 7&33*1' !4./' .2*' ,!(3.' -*43/(!&;' -;&33' 2*' 3*4&./(3' &;/4*' &6/4>' .2*' 'A*(*' !4' *&(;!*(' .!6*3'&;;/A*1'./' D**7' .2*!(' ' .2*!(' 4&6*' /4' .2*' (/;;' &41' .2*!(' (!>2.3' &3' 04!67&!(*1' 0.' /,' .2!3' 7(!=!;*>*' .2*' 3*4&./(3' A*(*' 1*7(!=*1' !4' .2*' .!6*' /,' .2*' (&--2!' 2*' 406<*(' /,' .2*' ' ' ' (*F 6&!4*1' .2*' 3&6*' &3' 4/' &11!.!/4' A&3' 6&1*' ./' .2*' 306' *07*41*1' <5' .2*' 3.&.*' /4' .2*' 2/(3*3' /04>' 6*4' /,' 7(/7*(.5' 3/6*.!6*3' 3*(=*1' /4' .2*!(' /A4' 2/(3*3' # ' ' A!.2/0.' &45'32&(*' !4' .2*' 7/;!.!-&;' 7(!=!;*>*3' G/,' .2*' ' ,.*(' .2*' *-/41' 04!-'A&(' .2*' </15' /,' ' >(&10&;;5' ;/3.' !.3' 6!;!F .&(5' 7/3!.!/4' &41' ,!4&;;5' -*&3*1' ./' *0!3.' &3' &' 37*-!&;' .(//7' 4' .2*' $3.' -*4.0(5' ' .2*' 6*6<*(3' /,' .2*' *:0*3.(!&4' " ' /4;5' 3*(=*1' !4' .2*' (' /,' .2*'>*4*(&;' /(' !4' .2*' -&7&-!.5' /,' 6!;!.&(5' .(!<04*3' &41' ' /,' -/2/(.3

2*' A*&;.25' -;&33' A2/' A*(*' !4' 7/33*3F 3!/4' /,' .2*' ;&(>*'-&7!.&;' A2!-2' *4&<;*1' .2*6' ./' 041*(.&D*' .2*' ,&(6!4>' /,' .2*' 70<;!-' (*=*40*3' &41' A2/' -/43*:0*4.;5' 2&1' .2*' "/77/(.04!.5' /,' *4(!-2!4>' .2*63*;=*3' 3.!;;' ,0(.2*(' 2&1' ;/4>' *4K/5*1' &' =*(5'!4,;0*4.!&;' 7/3!.!/4' 4' $@' ' .2*' *')&*' /,' % &!43' (&--203' .(&43,*((*1' ./' .2*' 7/33*33/(3' /,' .2*' *:0*3.(!&4' -*4303' 8%$NN NNN' /(' &</0.'E VNN9' ./' (!>2.' ./' 3!.' /4'K0(!*3' A2!-2' 2&1' 7(*=!/03;5'<*;/4>*1' *0-;03!=*;5' ./' 6*6F <*(3' /,' .2*' 3*4&.*' 203' &4' ' ' %/(.2!(1' /(1*(' 3.&41!4>' <*.A**4' .2*' 3*4&.*' &41' .2*' 7*/7;*' A&3' ,/(6*1' A2!-2' <*>&4' ./' 7;&5' &4' !67/(.&4.' 7&(.' !4' 7/;!.!-3' .3' 6*6<*(3' A*(*' -&;;*1' '*=*4' !,' .2*5' A*(*' 4/.' *4(/;;*1' !4' .2*' " ' ' 2*' -/4.*3.3' <*.A**4' .2*' 3*4&.*' &41' .2*' ' ,/(' .2*' *0-;03!=*' (!>2.' ./' 3!.' /4' .2*' K0(!*3' -/4.!40*1' A!.2' =&(5!4>' ,/(.04*3' 04.!;' .2*' *41' /,' .2*' *70<;!-' 0>03.03' &;;/A*1' .2*' ' ./' -/4.!40*' !4' *0!3.*4-*' &3' &' -;&33' !4' 7/33*33!/4' /,' &' -*(F .&!4' !4-/6*' <0.' .2*' /;1';!3-&;' &41'K01!-!&;' 353.*6'-&6*' ./' &4' *41' &41' .2*' '&--/(1F !4>;5' ;/3.' &;' !.3' ,/(6*(' !67/(.&4-*' 4' .2*' /.2*(' 2&41' .2*' ' 7(/7*(' (/3*' !4./' &' 7/3!.!/4' /,' >(*&.' -/43!1*(&.!/4' 2*5' A*(*' 1!=!1*1' !4./' 3!0' ' 2*&1*1' <5' &4' !67*(!&;' 7(!4-*' &3' " ' " ' (0*' .2*5' 2&1' 4/' ,0(.2*(' 3.&41!4>' &3' &' -/(7/(&./!4' <0.' .2*' *67*(/(' *67;/5*1' .2*6' !4' &' =&(!*.5' /,' -/4,!1*4.!&;' 7/3.3' 2*' .!.;*' ' 'B ' A&3' 4*-*33&(5' ,/(' .2*' &..&!46*4.' /,' .2*' /,;' -*' /,' 6!;!.&(5

' $+' !# #+' &&' 36# #0 221' /'67&+'#$+' $6'!+

.(!<04*' &41' ,/(' &' 406<*(' /,' .2*' 6/`.' !67/(.&4.' 6!;!.&(5' 7/3.3' 2*' 7/A*(' /,' -/4,*((!4>' /(' A!.21(&A!4>' .2*' .!.;*' -&6*' &.' ;*4>.2' ./' (*3.' A!.2' .2*' *67*(/(' &;/4* 2*' (*=!*A' /,' .2*' A2!-2' 03*1' ./' .&D*' 7;&-*' *=*(5' ,!=*' 5*&(3' 4/A' <*-&6*' &' 6*(*' -*(*6/45'&41'A&3'04!.*1'<5' 0>03.03' A!.2' .2*' &4-!*4.'&440&;' 7&(&1*#" ' /,' .2*' $V.2' 0;5' 2*' !0' ,0;;' 04!,/(6' (/1*' .2(/0>2' .2*' /(06' ./' .2*' &7!./;' 7&3.' .2*' .*67;*' /,' &(3'/(' G"/ ,.*(' .2*' .(&43,*(*4-*' /,' .2*' 3*&.' /,' >/=*(46*4.' ./' /43.&4.!4/7;*' .2*' ' 3&4D' !4./' .2*' 7/3!.!/4' /,' &' -!.5' -/(7/(&.!/4' 3.&41!4>' <*.A**4' .2*' 3*4&.*' &41' .2*' >0!;13' &41' !4' 7/33*33!/4' /,' 37*-!&;' 7(!=!;*>*3' 2*' !43!>4!&' /,' .2*' A*(*' &'>/;1' (!4>' &41' &'4&((/A'70(7;*'</(1*(' /4' .2*' .04!-' # ' & ' .' .2*' 2' ' .2*5' A/(*' .2*' ' &' 6&4.;*' &1/!"4*1' A!.2' 70(7;*' 3.(!7*3' &41' -(/A43' /,' 1!=*' (/6' ' .2*' ,/0(.**4',!(3.'(/A3' A*(*' &33!>4*1'./'.2*6'(" ? ' (&413' 2*' (**D' .*(6',/(' &4' /(>&4!Q*1' -;0<' /(' 3/-!*.5' ,/(' .2*' 70(7/3*3' /,' ,*&3.F !4>' &41' &603*6*4.' A2/3*' 6*6<*(3' A*(*' -&;;*1' " ' /6*.!6*3' !.' A/0;1' <*' ,/(6*1' !4' -/44*0!/4' A!.2' .2*' A/(32!7' /,' 7&(.!-0;&(' 1*!.!*3' /6*.!6*3' &>&!4' .2*' /<K*-.' /,' &4' " ' A/0;1' <*' 60.0&;' &33!3.F &4-*' <5' &1=&4-*3' /,' 6/4*5' 2*' >/=*(4F 6*4.' *4-/0(&>*1' .2*3*' -;0<3' <*-&03*' .2*!(' -/(7/(&.*' -2&(&-.*(' 6&1*' !.' *&3!*(' ./' 3*..;*' A!.2' *07*1!.!/4' &45' ;*>&;' 7(/-**1!4>3' &(!3&!4>' /0.' /,' .2*!(' &,,&!(3' (!&;3' /,' .2!3' D!41' ,/(' (*,03&;' ./' 7&5' 30<3-(!7.!/43' /(' ./' (*7&5';/&43' 2&1' ./' <*' 3*..;*1' A!.2!4' &' 6/4.2

(J.1' ' 0)

(&./3.2*4*3' ' (**D' 3&=&4.' </(4' &.' 5(*4*' !4' @UV' &' *'-/67;*.*1'2!372!;/F 3/72!-&;' *10-&.!/4' &.' .2*43' A2*(*' 2*' 6&1*' 2!3' ,!(3.' 70<;!-' &77*&(&4-*' &3' &' ;*-.0(*(' /4' 72!;/3/725' !3' ;*&(4!4>' A/4' 2!6' 30-2' &' (*70.&.!/4' .2&.' ./;*65' 8 0*(> .*3@' !4=!.*1' 2!6' !4' @CU' -' ./' ;*0&41(!&' &41' 6&1*' 2!6' ;!<(&(!&4' .2*(*' !4' .2*'7;&-*' /,' &;;!6&-203' *' !3' 3&!1' ./' 2&=*' 1!*1' &,.*(' 4*&(;5' ;/3!4>' 2!3' *5*"3!>2.' <5' =/;04.&(5' 3.&(=&.!/4' !4' $TV' ' *' A&3' &' 6&3.*(' /,' 3-!*4-*' !4' &;;' !.3' <(&4-2*3 [' 2!3./(5' >*/>(&725' >*/6*.(5' &3.(/4/65' 72!;/3/725' >(&66&(' &41' 7/*.(5' 3' &' A(!.*(' 2*' .(*&.*1' &4' &3./4!32!4>' =&(!*.5' /,' 30<K*-.3' &41' A/4' .2*(*<5' 2*' 4&6*' /,' ' " ' 8/(' 6&3.*(' !4' .2*' ,!=*' >(*&.' G*0*(-!3*3' /,' .2*' &(*4&9' .' !3' 3&!1' .2&.' 2*' A&3' .2*' ,!(3.' 7*(3/4' A2/' &330 6*1' .2*' 4&6*' /,' ,(1 ' /(' ,(!*41' /,' 3-!*4-*' !3

>(*&.*3.' 3*(=!-*' -/43!3.3' !4' .2*' ,&-.' .2&.' 2*' A&3' .2*' ,/041*(' /,' 3-!*4.!,!-' >*.B(&725' !3' >(*&.*3.' A/(D' A&3' 2!3' 1 <[! ' !4' .2(**' </!D3' 2*' ,!(3.' A&3' 07/4' 7253!-&;' >*/>(&725' .2*' 3*-/41'.(*&.*1' 6&.2*6&.!-&;' >*/>(&725' /4'.2*' <&3!3' /,' .2*' 6*&30(*6*4.' /,' 1*>(**3' 1!3-/=*(*1' <5' 2!63*;,' 2*' 30<K*-.' /,'.2*' .2!(1' A&3' -2/(/>(&725'<&3*1' 07/4'&' 6&7' /,'2!3' /A4' 1(&A!4>' 2*' A/(D' !3' 04,/(.04&.*;5' ;/3.' &41' D4/A4' /4;5' <5' GA2&.' ;&.*(' A(!.*(3' *37*-!&;;5' .(,.</' 2&=*' 7(*3*(=*1' !3./(!-&;' !4=*3.!>&.!/4' /A*3' &'>(*&.'1*&;'./'.2*'$(" 1 '!4'A2!-2' 2*' 041*(./!D' ./' ,/041' -2(/4/;/>5' /4' &3*' ./(/7/65' &41' 6&.2*6&.!-3' !3' -/67(*F 2*43!=*'</!D' /4' 4-!*4.' /6*15' A&3' &'-/4F .(!<0.!/4'./'.2*' 2!3./(5'/,';!.*(&.0(*' 2*' $ 1 ' A&3' &' A/(D' /4' &3.(/4/65' &41' 65.2/;/>5' !4' A2!-2' A*(*' -/;;*-.B' .2*' ,&<;*3' /,' .2*' &4-!*4.' A(!.*(3' /4' .2*' -/4F 3.*;;&.!/43'A!.2'&4'*406*(&.!/4/,'.2*'3!4>;*' 3.&(3' !4' *&-2' >(/07' ' 1(5' -/67*41!06' -&;;*1' .2*' $ ' -/4.&!4!4>' &' 6*(*' *406*(&.!/4' /,' CC' -/43.*;;&.!/43' A!.2' CUV' 3.&(3' &41' .2*' ,&<;*3' &..&-2*1' !3' <&3*1' /4' .2*'>(*&.'A/(D'/,' (&./3.2*4*3' !3'7/*.!-&;' *,,/(.3' A*(*'&'32/(.'*7!-' -&;;*1' '&41' &' -*;*<(&.*1' *;*>5' .2*' ' 1 " ' *3!1*3' .2*' -/67*41!06'&</=*' 6*4.!/4*1'&41'3/6*' ,(&>6*4.3'A*' 2&=*' &';*..*(' /,' (&./3.2*4*3' ./' ./;*65' 0*(>*.*3' /4' .2*' 1/0<;!4>' /,' .2*' -0<*' &41' &4' *7!>(&6' /4' .2*' 3&6*' 30<K*-.

(2,!3' 4' (**D' 6K(B.2/;/>5' .2*' 7(!F 6*=&;' 1&(D4*33' 7(!4>!4>' &--/(1!4>' ./' *3!/1',(/6' 2&/3' <(/.2*(' /,' !>2.' &41' ,&.2*(' <5' 2*(' /,' ! .2*(' &41' *6`(&'81&59' 2*' A/(1'!3' -/66/4;5' 03*1' /,' .2*' ;/A*(' A/(;1',!;*1' !.2'!67*4*.(&<;*' 1&(D4*33

(*-2.2*06'8 (*-2.2 ! 49' 2*'/(!>!4&;' 3&4-.0&(5'/,' .2*' .4.*;&!5'1*!.!*3' /,' .2*43' .2*4*' 7?;;&3' 8.2*' >/11*33' /,' .2*' -!.59' <3*!1<4' &41' (*-2.2*03' .' A&3' 3!.0&.*1' /4' .2*' -(?7? !3' 2*' /;1' .*67;*' 3&!1' ./' 2&=*' <**4' <0!;.' <5' (*-2.2*03' A&3' <0(4.' <5' .2*' *(3!&43' !4' CRN' (' 2*'(*3./(&.!/4' A&3' 7*(2&73' <*>04' &3',&(' <&-D' &3' .2*' .!6*' /,' (;-; 3' <0.'&--/(1!4>'./'.2*' .*3.!6/45' /,' &4' !43-(!7.!/4' !4' .2*' (!.!32' 03*06' 84/' OOO=9' A&3' 4/.' :0!.*' ,!4!32*1' !4' CNT' 2*' 4*A' .*67;*' A&3' *=*4' !4' &4.!:0!.5' &16!(*1' &3' /4*' /,' .2*' 6/3.' <*&0.!,0;' &41' 7*(,*-.' A/(D3' /,' .2*' ..!-" /4!-' 3.5;*' ' A&3' ?V' ,**.' ;/4>' &41' 4*&(;5' ?' <(/&1' &41' A&3' 1!=!1*1' !4./'.A/' 6&!4' 7&(.3' 4.*(!4>' .2(/0>2' .2*' *&3.*(4' 7/(.!-/' /,' 3!0' /4!-' 7!;;&(3' /4*' -&6*' !4./' .2*' ' /,' .2*4*' /;!&' ' A!.2' &4' !6&>*' /,' .2*' >/11*33' &41' &' ;&67' .2&.' A&3' &;A&53' D*7.' <0(4!4>' / .2*' 3/;!1' A&;;' &.' .2*' <&-D' A&3' &..&-2*1' .2*' (*-2.2*06'7(/7*(' *(*'A*(*'.2(**'&;.&(3' /4*' -/66/4' ./' /3*!1/4' &41' (*-2.2*03' .2*'/.2*(' ./' *72&*3.03' &41' .2*' 2*(/' 0.*3' /44*-.*1' A!.2' .2!3' <5' .2(**' 1//(3' A&3' &' 36&;' ,(/4."-2&6<*(' A!.2' 3*=*4' 2&;,' -/;0643' &1/(4!4>' .2*' A*3.*(4' A&;;' &41' .2(**'A!41/A3'<*.A**4'.2*6' 2!3'-2&6<*(' A&3' &77(/&-2*1' .2(/0>2' &' 2&;;' &..&-2*1' ./' .2*' 4/(.2'3!1*' /,' .2*' .*67;*' &1/(4*1' A!.2' 3*=*4' /4!-' -/;0643' !4' ,(/4.' &41' /4*' /4' *&-2' 3!1*' 41*(' .2!3' A&3' &' -;*,.' !4' .2*' (/-D' 3&!1' ./' 2&=*'<**4' 6&1*' <5' .2*' .(/D*' /,' /3*!1/43'.(!1*4.'10(!4>' 2!3' /4.*3.' A!.2' ,,!*4*' ,/(' .2*' 7/33*33!/4' /,' .2*' 3/0.2' 3!1*' /((*37/41!4>' ./' .2!3' /4' .2*' 3/0.2' 3!1*' A&3' &' 6&;;' 2&;;' 3077/(.*1' 4/.' <5' 7!;;&(3' <0.' <5' -&(5&.!1*3' 2!3' A&3' -&;;*1' .2*' &;' /,' <(*'&41'!.'7(/<&<;5'-/4.&!4*1' .2*' *./6</,' *-(/73' (/6'!.'&'3.*7';*1' 1/A4' ./' &' /0(.'/4-*' A&;;*1' (/041' !4' A2!-2' A*(*' .2*' &41(3 06'& ' J J ' .2*' 3&-(*1';!=*' .(*' /,' .2*4*' &41' .2*' &;.&(' /,' L*03' *(D*!,!3' 4' .2*' *&3.' 3!1*' !4' ,(/4./,' .2*' .*67;*' /,' .2*4*' /;!&3'3./!1' .2*' &;.&(' /4' A2!-2' .2*'>(*&.' 2*-&./6<' A&3' /,,*(*1' &.' .2*' &4&.2*4&*&' & ' 7;&4' /,' ^ ;!!39

(*-2.2*03' ' 65.2!-&;' D!4>' /,' .2*43' --/(1!4>' ./' /6*(' 2*' A&3' .2*' 3/4' /,' &(.2' <5' 723*3.03' &41' <(/0>2.' 07' <5' .2*4*' !D*' .2&.' /,' *-(/73'2&;,' /,' 2!3',/(6'A&3' .2&.' /,' &' 34&D* [&' 3!>4' .2&.' 2*' A&3' /4*' /,' .2*' &</(!>!4*3' .2*4*' 70.' 2*' -2!;1' !4' &' -2*3.' A2!-2' 32*' >&=*' ./' .2*' 1&0>2.*(3' /,' *-(/73' >(&0;/3' *(3*' &41' &41(3<3'./'.&D*' -&(*'/,',/(<!11!4>' .2*6' &.' .2*' 3&6*' .!6*' ./' /7*4' !.' 2*' .A/' *;1*3.' 1!3/<*5*1' &41' !4' .*((/(' &.' .2*' 3*(7*4."32&7*1' -2!;1' 8/(' &--/(1!4>' ./' &4/.2*(' =*(3!/4' .2*' 34&D*' .2&.' 30((/041*1' .2*' -2!;19' .2*5' A*4.' 6&1' &41' .2(*A' .2*63*;=*3',(/6'.2*(/-D3'/,' .2*' -(/7/!3' 4/.2*(' &--/04.' 6&1*' .2*3*(7*4.' D!;;' .2*6' (*-2.2*03'1(/=*'/0.' 672!-.5/4' &41' >/.' 7/33*33!/4' /,' .2*' D!4>1/6' *' .2*4' *3F .&<;!32*1' .2*' A/(32!7' /,' .2*4*' &41' <0!;.' ./' 2*(' &3' >/11*33' /,' .2*' -!.5' &, ' &' .*67;*' 4&6*1' &,.*(' 2!6' .2*' (*-2.2*06' *(*' 2*' A&3' &;3/' .2*',/041*(' /,' .2*' &4&.2*4&!-',*3.!=&;' *' A&3' 3&!1' ./' 2&=*' <**4' !4=*4.*1' .2*',/0("A2**;*1' -2&(!/.' &41' ./' 2&=*' <**4' .&D*4' 07' ./' 2*&=*4',/(' .2!3' <5' L*03' &41' 3*.' !4' .2*' 3D5' &3' .2*' -/43.*;;&.!/4' /,' .2*' -2&(!/.**(' !3' 1&0>2.*(3' A*(*' (!.25!&' &41' (/-(!3' & ' ? ' &41 . 9' (!>!4&;;5'!1*4.!F ,!*1'A!.2' (!-2.2 4;03'2*'A&3'!4'&.*(.!6*3

1!3.!4>0!32*1' ,(/6' 2!6' &41' A&3 (*>&(1*1' &3 2!3 >(&413/4' &41' &3 3/0 /,' &41!/4' &41' L*00!77*' !3 .A!4' <(/.2*(' A&3 .!.*3' 2!3 3!3.*(3 (/-4*' &41' 2!;/6*;&' 2*' 7(!*3.;5 /,,!-*' ,*;;' ./' &.*3' A2!;*' (*-2'' .2*03 &3306*1' .2*',04-.!/43/,' (/5&;.5' 5' (&0!.2*&' .2*' 1&0>2.*(' /,' *7<!3303' 2*' A&3,&.2*(' /,' .2*' 3*-/41' *-(/73& '

' @9' /,' *.;/4' & ' 7 !' /,' (B03&' & ' A ' &3 A*;;' &3 /,' (?.?>*4*!&' &41/(&' &41' 2.2<4!&' 2*4' .2*43 A&3 7(*33*1' 2&(1' <5' .2*' ;*03!4!&43 041*(' /6/;703' .2*' /(&-;*' 7(/6!3*1' 2!6' .2*' =!-./(5' 2' 2*' A/0;1' 3&-(!,!-*' /4*' /,' 2!3 1&0>2.*(3' *' -2/3*' .2*' 5/04>*3.' 2.2/4!&" <0.' (/./>*4*!&' &41' &41/(&' A2/' 2&1' 6&1*' &' =/A' A!.2' .2*!(' 3!3.*(' ./' 1!*' A!.2' 2*(' =/;04.&(!;5' 32&(*1' 2*(' ,&.*' (*-2.2*03 -/4:0*(*1' 2!3' *4*6!*3 &41' 3;*A' 06/;703' <0.' A&3 &,.*(A&(13 1*3.(/5*1' <5' .2*' .(!1*4.' /,' 2!3' *4*653' ,&.2*(' /3*!1/4

(>!;4*' '

(>!403' ^!4>' /,' .2*' ;453*' /,' (-2 " 6`403' 3/4' /,' 3*!1/4' 8/(' ;B6 403' &--/(1!4>' ./' &4/.2*(' &--/04.9' &41' /4*' /,' .2*' (>/4&0.3' .' .2*' >&6*3/,' /3*!1/4' &.' 4-2*3. 3' ;56*403' A&3' D!;;*1' <5' &' 3./4*' .2(/A4' <5' &' 4/<;*' 2*<&4' (>!403' !4' -/43*:0*4-*' -/67*;;*1' .2*' 2*<&43' ./' 7&5' 2!6' &4' &440&;' .(!<0.*' /,' $NN' /0*4' ,/(' .A*4.5' 5*&(3' *(,.-;*3' /4' (*.0(4!4>',(/6' 2!3' 3;&0>2.*(' /,' .2*' ;!/43' /,' !.23*(/4'-&6*' 07/4' .2*' 2*(&;13' A2/' A*(*' -/;;*-.!4>' .2*' .(!<0.*' *' -0.' /,,' .2*!(' 4/3*3' &41' *&(3' .!*1' .2*!(' 2&413' (/041' .2*!(' 4*-D3' &41' ./;1' .2*6' .2&.' .2!3' A&3' .2*' .(!<0.*' .2*5' 6!>2.' .&D*' <&-D' ./' .2*!(' 6&3.*(' &(' <(/D*' /0.' *(&-;*3' &(6*1' .2*' 2*<&43' A!.2' .2*' &(63' 2&4>!4>' !4' .2*' .*67;*3' .2*' !453*' 2&=!4>' -&((!*1' /,' &;' .2*' /.2*(3" 3;*A' (>!403' 1*3.(/5*1' (-2/6*403' &41',/(-*1' .2*' !45&*' ./' 7&5' 1/0<;*' .2*' .(!<0.*' ./' 2*<*3' 2*' 3/43/,' (>!403' A*(*' .2*' 65.2!-&;' &(-2!.*-.3' >J6*1*3' &41' (/72/4!.!3

(!-2.214!03' 8$9' /4' /,' &(1 403' & ' ' &41' &.*!&' ,&.2*(' /,' (/3' 8@9' ' ( )

(;>,!4*' &0>2.*(' /,' - (;,!3' A2/' 2&4>*1' 2*(3*;' ,/(' >(!*,' &.' .2*' 60(1*(' /,' 2*(' ,&.2*(' &41' A&3' .&D*4' 07' ./' 2*&=*4' &3' .2*' -/43.*;;&.!/4' /,' .2*' !(>!4' & ' 9

(!44&' ',&6/03' (**D' 7/*.*33' &4&.!=*' /,' .2*' !3;&41' /,' *;/3' 2*' A&3' &',(!*41' &41' -/4.*67/(&(5' /,' &772/' A!.2' A2/6' 32*' ;!=*1'!4' ;.KB;*4*' 2*',;/0(!32*1' &</0.' ?NN' -' &41' 1!*1' &.' .2*' &>*' /,' 4!4*.**4' 2*' 7/*6' <5' A2!-2' 32*' !3' <*3.' D4/A4' !3 .2*' " ' &9 ' -/43!3.!4>' /,' NN' 2*0&6*.*(3' ',*A' =*(3*3' /,' .2!3' &41' &,*A' *7!>(&63' &(*' /,' 2*(' =A!.!4>' A2!-2' 30(=!=*3' 7/*6' !4',!=*' &772!-'3.(/72*3' &11(*33*1' ./' /6*' &3' .2*' 6!3.(*33/,' .2*' A/(;1' !3' ,(/6' .2*' 2&41' /,' & 60-2' ;&.*(' 7/*.*33' *;!74/' A2/' 7(/<&<;5' ;!=*1' !4' /A*(' .&;5&.' .2*' .!6*' /,' .2*' A&(' A!.2' 5((203' /(' .2*' !(3.' 04!-' &(

(!4K,B 38 (**D9' 2*'>/11*33*3' /,'=*4>*F &4-*' /6*(' 37*&D3' 3/6*.!6*3' /,' /4*' 3/6*.!6*3' /,' 3*=*(&;' <0.' A!.2/0.' &45' 1*,!4!.*' 3.&.*6*4.' &</0.' *!.2*(' 406<*(' 4&6*' /(' 1*3-*4.' *3!/1' 6&D*3' .2*6' .2*' 1&0>2.*(3' /,' &!&8 &(.29' 37(04>',(/6' .2*' <;//1' /,' .2*' 60.!;&.*1' (&403' --/(1!4>' ./' /.2*(3' .2*5' A*(*' .2*' 1&0>2.*(3' /,' !>2.

8 &3*" &!4.!4>9

&>:-' /(' /,' .2*' &(.2' &41' &(D4*33' & ' 0(!7!1*3' !3' .2*' *&(;!*3.' A(!.*(' A2/' ,!0*3' .2*!(' 406<*(' &.' .2(**' &41' -/4F 3!1*(&<;5' ;&.*(' A*' ,!41' .2*6' A!.2' .2*' 4&6*3' ;;*-./' 8H 2*' A2/' (*3.3' 4/.' I9' !3!72/4*' 8H' =*4>*(' /,' 60(1*(' I9' &41' >&*(&' 8H' 2*K*&;/03/4* I9' 2*5' &(*' .2*' &=*4>*(3' /,' *=*(5' .(&43>(*33!/4' /,' 4&.0(&;' /(1*(' &41' *37*-!&;;5' /,' /,,*4-*3' A2!-2' ./0-2' .2*' ,/041&.!/4' /,' 206&4' 3/-!*.5' 2*5' 704!32' A!.2/0.' 6*(-5' &;' =!/;&.!/43' /,' ,!;!&;' 10.5' /(' .2*' -;&!63' /,' D!432!7' /(' .2*' (!.*3' /,' 2/37!.&;!.5" 60(1*(' 7*(K0(5' &41';!D*' /,,*4-*3" !4' /6*(' *=*4' <*>>&(3' 2&=*' .2*!(' (!453' 2*' 704!326*4.' <*>!43' /4' *&(.2' &41' !3' -/4.!40*1' &,.*(' 1*&.2' 203' .2*5' 70(30*' (*3.*3' &41' ;-63* 4' A2/' 3;*A' .2*!(' 6/.2*(3' &41' 8 1!703' ,/(

.2*' 6.!,1*(' /,' 2!3' ,&.2*(' &41' 6&((!&>*' A!.2' 2!3' 6/.2*(' A!.2/0.' (*>&(1' ./' .2*' -!(-063.&4-*3'<5'A2!-2'.2*!(' /,,*4-*3'A*(*' *0-03*1' 2*!(' 7(!4-!7;*' !3'&'3!67;*' /4*' H'&4' *5*' ,/(' &4' *5*' &41' &'.//.2',/('&'.//.2 I' 4'37!.*' /,'.2*!(' .*((!<;*' &..(!<0.*3'&3'>/1F 1*33*3'/,'=*4>*&4-*'.2*5'A*(*'-&;;*1' " ' 8.2*'2/4/0(&<;*9'&41'9 ") 48.2*'D!41;59' /(' .2*'704!32 6*4.'/,'.2*'*=!;'3*-0(*3'.2*' A*;;"<*!4>' /,' .2*' >//1'&41' <5' 70(30!4>' &41' 1*3.(/5!4>' .(&43>(*33/(3' .2*' (!45*3' 7(/=*' .2*636=*3' <*4*=/;*4.' &41' <*4*'' !!/*4.' 2*5'A*(*' A/(32!77*1'!4' .2*43' 041*(' .2*'4&6*/,' " '&41'2&1'&'32(!4*' /4'.2*' (S7.;>S3'&41'.2*' 2!;;' /,' ;/443' (*32' A&.*(' &41' <;&-D' 32**7'A*(*'/,,*(*1' ./'.2*6'!4'3&-(!,!-*' 2*' .*((!<;*' B7!-.0(*' 1(&A4' /,' .2*6'<5' 3-25;03'!4'2!3'9 2' " ' &3' A/6*4' ;!D*' /(>/43' A!.2' 34&D*3',/(' 2&!(';<;//132/.' *5*3'>(!41!4>' .**.2'&41';/4>' <;&-D' (/<*3'A!.2' <;//1"(*&' >!(1;*3'A&3'3/,.*4*1'1/A4'!4';&.*(' .!6*3' 2*5'&77*&(' &3'6&!1*43'/,' 3.*(4' &37*-.' A!.2'34&D*3'!4'.2*!(' 2&!(' /(' (/041' .2*!(' >!(1;*3' &41' &(63' ./(-2*3' 3-/0(>*3' (3!-D;*3'!4'.2*!(' 2&413' >*4*(&;;5' !4' .2*' -/3.06*' /,' 204.(*33*3'&41'3/6*.!6*3'A!.2' A!4>3'&3'&' 3!>4' /,' .2*' 3A!,.4*33' /,' .2*!(' =*4>*&4-*'#' -0.9

2*' 0(!*3'#.9M' /(' 5' /,' .2*' /6&4' 7/*.3' &(*' &' 6*(*' &1&7.&.!/4' /,' .2*' (**D' (!45*3' 2*5'&(*' >*4*(&;;5' (*7(*3*4.*1'&3'./(.0(!4>' .2*' >0!;.5'!4' .2*' A/(;1' <*;/A' <0.' &3' 3/6*.!6*3' &77*&(!4>' /4'*&(.2'./'*0-!.*'./'-(!6*' &41' .2(/A' 6*4' !4./' 6&14*33

,!(;725;*' 4' (**D' 65.2/;/>5' 3!3.*(' /,' 1(&3.03' &41' A!,*' /,' 672!2(&;!3' #' ' (!<*1' A!.2' &' 4*-D;&-*' <5' 2;B4!-*3'32*'7(*=&!;*1'/4'2*(' 203<&41'./' .&D*' 7&(.' !4' .2*' A&(' /,' .2*' *=*4' 2!*,3' &>&!43.' 2*<*3'!4'A2!-2' 2*' 6*.' 2!3'1*&.2' # ' & ' % ' 4' (*=*4>*' ,/(' .2!3' 32*' A&3' 3;&!4' <5' 2*(' 3/4' ;-6&*/4' # '

(;3' 2*' >/11*33' /,' 1!3-/(1' ,!>2.!4>' &41' :0&((*;;!4>'!4' .2*' (**D' 65.2/;/>5' 4' /6*(' 32*' !3' 3!3.*(' &41' -/67&4!/4' /,' (*3'&41';!D*' 2!6'!43&.!&.*' /,' <;//1*' !4' *3!/1'32*'!3'1&0>2.*(' /,' !>2.'&41' 6/.2*(' /,' .(/0<;*' /<;!=!/4' 204>*(' 7&!4' 60(1*(' &41' -&(4&>*' <(&A;3' 1*-*!.' &41' ;&A;*33F 4*33' 2*' A&3' .2*' /4;5' /4*' &6/4>' .2*' >/13'A2/'A&3'4/.'<!11*4'./'.2*' 6&((!&>*' /,' ;*03' &41' 2.;3' 4'(*=*4>*'32*'.2(*A' &'>/;1*4'&77;*'&6-6>' .2*' >0*3.3'&41'.203' >&=*' /--&3!/4',/(' .2*' (/K&4' &(' # ' : ' F ' !1*' <5' 3!1*' A!.2' .2!3' 1*3.(0-.!=*' (!3'A&3'&'<*4*,!-*4.' (!3'.2*' N'

3!3.*(' &--/(1!4>' ./' *3!/1' /,' .2*' /.2*(' 2*' A&3' .2*'7*(3/4!,!-&.!/4',' 4/<;*' (!=&;(5' .61' !3' (*7(*3*4.*1' &3' 3.!60;&.!4>' *=*4' 10;;&(13' ./' *0*(.!/4

E(13' 2*' >/1' /,' ;/=*' &6/4>' .2*' (*133' !3' 4&6*' 1/*3' 4/.' /--0(' !4' /6*(*' <0.' !4' *3!/1'2*'!3' .2*' ,&!(*3./,' .2*' 1*!.!*3'A2/'30<10*3' .2*' 2*&(.3'/,' &;;' >/13'&41'6*4' *'!3'<66',(/6' 2&/3'&.' .2*' 3&6*' .!6*'&3' .2*' &(.2'&41' &(.&(03'&41'!3' .2*' -/6(&1*'/,' 72(1;.*',(/6'.2*' 6/6*4.' /,' 2*(' <!(.2' *3!/1' -/4-*!=*3' (/3' 4/.' 6*(*;5'&3' .2*' >/1' /,' 3*430&;' ;/=*'<0.' &3' &' 7/A*(' A2!-2',/(63' .2*' A/(;1'<5'!!6*(' 04!/4' /,' .2*' 3*7&(&.*1' *;*6*4.3" &4' !1*&' =*(5' 7(*=&;*4.' !4' &4.!:0!.5' *37*-!&;;5' &6/4>' .2*' 72!;/3/72*(3' 0.' &--/(1!4>' ./' .2*' ;&.*,'&41'-/66/4*(' 4/.!/4' (/3'A&3' .2*'5/04>*3./,' .2*' >/13'>*4*(&;;5' .2*' 3/4' /,' 72(/1!.*' <5' (*3'/(' *(6*3'&;A&5H

&'-2!;1'.2/0>2.;*33'&41' -&7(!-!/03' *'!3' &3'!((*3!3.!<;*'&3',&!(' &41' 2&3'4/'7!.5'*=*4' ,/(' 2!3' /A4' 6/.2*(' L*03'.2*' ,&.2*(' /,' >/13'&41'6*4'&(63'2!6'A!.2'>/;1*4'A!4>3' &41' A!.2' </A' &41' 04*((!4>' &((/A3' /(' <0(4!4>' ./(-2*3' 4. (/3' .2*' >/1' /,' 60.0&;' ;/=*'!3' 2!3' <(/.2*(' &41' 2!3' -/6F 7&4!/43'&(*' Z.2V3'&41' ;6 (V3'.2*' 7*(F 3/4!,!-&.!/43' /,' ;/4>!4>' &41' 1*3!(*' A!.2

*!.2/ 8 *(30&3!/49 .2* 03*3 &41 .2* (&-*3 4 ;&.*(.!6*3 2* !3 30((/041*1 <5 &-(/A1 /, 3!6!;&(<*!4>3 (/. 3 /(;/=*3 8 /(.2* ;&.*(;*>*41/, (/3 &41 35-2* * (

4* /, .2* -2!*, &41 /;1*3. 3*&.3 /, 2!3 A/(32!7 A&3 2* 7 3* !4 /*/.;& *(* A&3 2!3 6/3. &4-!*4. !6&>* & (/0>2 04F 2*A4 3./4* !3 ,*3.!=&; .2* (/.!& /((/.!1!& -/4.!40*1 .!;; .2* .!6* /, .2* /6&4 67!(* ./ <* -*;*<(&.*1 *=*(5 ,!,.2 5*&(A!.2 60-2 -*(*6/45 &--/67&4!*1 <5 > 044&3.!- &41 6 03!-&; -/4.*3.3 *F 3!1*3 .2!3 2* A&3 7&!1 37*-!&; 2/4/0(&41 A/(32!7 !4 .2* >564&3!& A2*(* 2!3 3.&.0* >*4*(&;;5 3.//1 4*&(.2/3* /, *(F 6*3 &41 *(! ;*3 4 .2* >564&3!& (/3

A&3 .2* 7*(3/4!,!-&.!/4 /, 1*=/.*1 ,(!*41F 32!7 &41 ;/=* <*.A**4 5/0.23 &41 6*4 .2* ,(!*4132!7 A2!-2 7(/=*1 !.3*;, &-.!=* &41 2*;7,0;, !4 <&..;* &41 </;1 &1=*4.0(* 2!3 A&3 .2* (*&3/4 A25 .2* 7&(.&43 &41 (*.&43 3&-(!,!-*1 ./ (/3 <*,/(* &<&..;* &41 .2* 3&-(*1 <&41 /, 5/0.23 &. 2*<*3 A&3 1*1!-&.*1 ./ 2!6 A25 &, *3.!=&; /, ,(**1/6#9 (A&3 2*;1 &. &6/3!4 2!3 2/4/0(&3 .2* >/1 A2/ </041 6*4 &41 5/0.23 ./>*.2*(!4 .2* 3.(0>>;* ,/(2/4/0(&41 ,(**1/6 &41 A25 &. .2*43 2* A&3 A/(32!77*1 &3 .2* ;!<*(&./(B /, .2* -!.5 !4 6*6/(5 /, &(6 11;03 &41 (!3./>!./4

4 A/(D3 /, &(. (/3 A&3 030&;;5 (*7(*F 3*4.*1 &3 & <*&0.!,0; </5 -;/3* 07/4 .2* &>* /, 5/0.2 4 ;&.*(.!6*3 2* &;3/ &77*&(3 &3 & -2!;1 A!.2 .2* &..(!<0.*3 /, & </A &41 &(/(A3 /(<0(4!4> ./(-2*3 &41 !4 & >(*&. =&(!*.5 /, 3!.0&.!/43 2* 6/3. -*;*<(&.*1 3.&.0*3 /, .2!3 >/1 A*(* <5 53!7703 - 7&3 &41 (&0!.*;*3 A2/3* (/3 &. 2*37!3* A&3 (*>&(1*1 &3 & 6&3.*("7!*-* &41 0430(7&33&<;* 2* ,&6/03 ./(3/ !4 .2* &.!-&4 !4 A2!-2 .2* >/1 A*&(3 & 1(*&65 ;/=*;/(4 &!(!3 7/70;&(;5 <0. 7(/<&<;5 *((/4*/03;5 .(&-*1 ./ &4 /(!>!4&; <5 (&0!.*;*3 8,!> $9 2* (/3 .(5!4> 2!3 </A !4 .2* &7!./;!4* 03*06 &. /6* !3 3077/3*1 ./ <* .2* -/75 /, & A/(D <5 53!7703 8,!> @9

2* /6&4 >/1 6/(/(,;7!1/ A&3 & 6*(* &1&7.&.!/4 /, .2* (**D (/3 &41 A&3 4*=*(2*;1 !4 >(*&. 2/4/0(

(3* /(*(3* "

(56&4.2!&4 /&(/ (

(K,3!-2.2/4 8$9 /4 /, .2* .2*4!&4 >/(/73

8@9 /4 /, (! 7&3 !4 2*33&;5 /(1*3*F -(&.!4> .2* 3&-(*1*4-;/30(* /, *6*.*(&41 ,*;;!4> &4 /&D -/43*-(&.*1 ./ .2* >/11*33 2* A&3 704!32*1 A!.2 !43&.!&<;* 204>*(&=!4> -/4306*1 &;, .2&. 2* 2&1 2* A&3 3077/(.*1 <5 2!3 1&0>2.*(*3.(& ./ A2/6 2*(;/=*(3*!1/4 2&1 >!=*4 .2* 7/A*(/, .(&43,*((!4> 2*(3*;, !4./ &45 32&7* .2&. 32* ;!D*1 4=&(!/03,/(6 3 32* -/4.!40&;;5 >/. 2*(3*;, 3/;1 &41 .2*4 (*.0(4*1 ./ 2*(,&.2*(A!.2 .2*7(/-**13 .;&3. (53!-2.2/4 A&3 (*10-*1 ./ 1*=/0(!4> 2!3 /A4;!6<3

(K..2*!& 4* /, .2* *37*(;1 3

(50 /4 /, 23*!1/4 8/(&--/(1!4> ./ &4/.2*(&--/04. /, &.*39 &41 72(/1!.* A2/ A&3 A/(32!77*1 /4 (50 & 6/04.&!4 !4 !-!;5 *A&3 D!4> /, .2* ;K,6! !4 .2* 4*!>2</0(2//1 /, .2* 6/04.&!4 (50 A&3 & 7/A*(,0; </0*(<0. A&3 3;&!4 !4 &, !>2. A!.2 *(-;*3 &</0. & <0;; A2!-2 2&1 (04 &A&5 ,(/6 .2* ;&..*(&41 A2!-2 (50 2&1 &77(/7(!&.*1

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33 106 "

E.`V-;*3 /4 /, 8 1!703 D!4> /, 2*<*3 &41 ^-&3.* <(/.2*(/, ;54;-*3 &41 4. > 4* *< (/D* .2* &>(**6*4. 2* 2&1 6&1* A!.2 2!3 <(/.2*(./ >!=*2!6 .2* D!4>1/6 /, 2*<*3 ,/(/4*/5*&(/;54!-*3 &--/(1!4>;5 /(>&4!Q*1 .2* -&67&!>4 /, .2* *=*4 B*,3 &>&!43. 2*<*3 &41 ,*;;* !4 3!4>;* -/6<&. A!.2 ./-;*3 # .) " $ + ' 0&14* &0>2.*(/, 72;3 A!,* /, &7&4*03 *(203<&41 ,*;;* <*,/(* 2*<*3 &41 &. 2!3 ,04*(&;32* .2(*A 2*(3*;, !4./ .2* ,;&6*3 /, .2* 75(* &41 A&3 -/4306*1 A!.2 .2* -/(73*

4&41(13 +

)C 0 0' ' (**D' 7/*,' /,' .2*' !11;*' / 6 *15' A2/' ,;/0(!32*1' &</0.' UN' (' !3' 7;&53' A*(*' 6&!4;5' /4' 65.2!-&;' 30<*-.3' &41' 7&(/1!*1' .2*' *&(;!*(' .(&>*1!&43' *37*"' Y!&;;5' 0(!7!1*3' 4*' 2041(*1' &41' ,/0(' 7!*-*3'A*(*'&..(!<0.*1'./' 2!6'/,'A2!-2' /4;5' &',*A',(&>6*4.3'2&=*'<**4'7(*3*(=*1'A(!..*4' !4' 70(*' &41'A*;;' -2/3*4';&4>0&>*

0-;!1*3'&9 ' 8$9' '72!;/3/72*(' ' >B(&'&' 1!3-!7;*' /,' /-(&.*3' &41' .2*' ,/041*(' /,' .2*' *>&(!&4'3-2//;

8@9' ' (**D' 6&.2*6&.!-!&4'A2/'.&0>2.'&.' ;*O&41(!&'&</0.' NN' (' ;;' .2&.' !3'D4/A4' /,' 2!3';!,*' !3' .2&.' 2*' A&3'2*;1' !4' 60-2' *3F .**6' &41' A/4' .2*' 2!>2' (*>&(1' /,' D!4>' ./;*65' ' !3';&</0(3'!4'70..!4>'.2*'1!3F -/=*(!*3' /,' ,/(6*(' 6&.2*6&.!-!&43'!4./' G/(1*(' -/67;*.!4>'.2*6' &41' *07/041!4>' .2*6' A!.2' 6&.-2;*33'-;*&(4*33' &41' -/4-!3*F 4*33' A/4' 2!6' .2*' 7/3!.!/4' /,' .2*' ,/041*(' /,' 6&.2*6&.!-&';!.*(&.0(*' *' 3.';7/33*33' 2!3' 9 " ' ' (' & (' GA2!-2' 2&=*' <**4' 03*1' 04.!;' :0!.*' ;&.*;5' &3' B.2*' ,/041&.!/4' /,&;';' >*/6*.(!-&;'.*0.</<//D3' G 2*3*' &(*' !4' $V' </!D3*' .2*' $ .2' &41' $C.2' 2/A*=*(' &(*' 3&!1' ./' 2&=*' <**4' &11*1' <5' 573-;*3' /,' ;*0&41(!&' &</0.' $?N' -' B *3!1*3' .2!3' A*' 2&=*' A2&.' &(*' -&;;*1' 2!3' , ' /(' TV' >*/6*.(!-&;' 7(/7/3!.!/43' &3' &4' !4.(/10-.!/4' ./' >*/6*.(!-&;' &4&; (3!3' &4' &3.(/4/6!-&;' A/(D' *4.!.;*1' ,(" ' &41' &' 603!-&;' A/(D' /4' .2*' 1!=!3!/4' /,' .2* %-&4/4' /6*' /.2*(' .(*&.!3*3' 7(/<&<;5' !(/6' .2*' 2&413' /,' /.2*(' &0.2/(3' 2&=*' <**4' &..(!<0.*1' ./' 0-;!1' 0-2' &(*' .2*' -" " ' ' ' $ " ' &41' .2*' ." "' '

01*603' ' (**D' 72!;/3/72*(' 4&.!=*' /,' 2/1*3' ,.*(' 2*/72(&3.03'2*'A&3'.2*' G-2!*,' /,' (!3./.;*3'1!3-!7;*3'&41'A&3'.2*' &0.2/(' /,' .2*' 3*=*4'<//D3' /,' 9 ' 9 (' A2!-2' 2&=*' -/6*'1/A4' ./' 03'&6/4>' 2!3' A(!.!4>3

02*61(43' ' (**D' A(!.*(' A2/' ,;/0" !32*1' &</0.' NN' (' 41*(' .2*' .!.;*' /,' ' " 1 (' /(' &-(*1' !3./(5' 2*' GA(/.*' &' A/(D' A2!-2' 70(7/(.*1'./' "*07;&!4' G.2*' A2/;*' 65.2/;/>5'/4' .2*' .2*/(5' /,' .2*' C!7/.2*/3!3' /,' 6*4' A2/' <5'.2*!(' <(&=*(5'&41' G-;*=*(4*33' 2&1' 1*3*(=*1'A*;;' /,' 6&4D!41' L*03',/('!43.&4-*'2!3'D!43,/;D'&41'-2!;1(*4' 2*'(*7(*3*4.*1'&3!4'(*&;!.5'&4-!*4.',&6!;5' G/,' (*.&4'D!4>3' /'7(/=*'2!3'&33*(.!/4' 2*' &77*&;*1'./' &' (*7(*3*4.&.!/4' /,' .2*' A2/;*' 7(!6!.!=*' 2!3./(5' /,' .2*' A/(;1',(/6' .2*' .!6*' /,' (&4,;3'/4A&(13'>!=*4'/4'&'>/;1*4' 7!;;&('!4' .2*' .*67;*' /,' L*03' /4' .2*' !3;&41' %/,' &4-23*&' 2!3' 2*' 3&!1' 2*' 2&1' 1!3" G-/=*(*1'!4'.2*'4*!>2</0(2//1/,' 41!&'A2*4 3&!;!4>'(/041'.2*' -/&3.' /,' (&<!&'/4' .2*' -/66!33!/4' /,' D!4>' &33&41*(' 2*' A/(D' /,' 02*6*(03'/,'A2!-2'/4;5',(&>6*4.3'4/A' (*6&!4'A&3'A*;;' D4/A4'!4' /6*'A2*(*!.' A&3'.(&43;&.*1'&41'&1&7.*1'<5' 44! 3' 2* 6*.2/1'/,'(&.!/4&;!Q!4>'/('&4&;53!2>65.2/" ;/>5'!4./'.2*'2!3./(5'/,'2066&4'D!4>3'2*(/*3' &41'&1=*4.0(*(3'!3'-&;;*1' 42*6*(!36'&,.*(' !.3',/041*(

. 13' ! *-' *)

440*43' 2*' ,&!.2,0;' 3A!4*2*(1' /,' 1533*0' A2/'>&=*' 2!3' 6&3.*(' &',(!*41;5' A*;-/6*' /4' 2!3'(*.0(4'2/6*'!4'.2*'>0!3*' /,' &'<*>>&('&41'&!1*1'2!6'!4'.2*'3;&0>2.*(' /,' .2*' 30!./(3' & ' 5 *) 44!*;03' ' ' 8$9 46?4;1V3' ') * 06V4!f03' 4*' /,' .2*' /6&4'A(!.*(3'/,' 7&4*B(!-3'/4'.2*' *4!7*((/(3' *' A&3'</(4' &</0.'@VN' '&.' 0>03.<1040 6'& " '!4' &0;" A&3'.0./(' ./' /43.&4.!03' 2;/63' &41',/(' &';/4>'.!6*'&--/67&4!*1'2!6'/4'2!3' -&67&!>43' &.*(' X6' 2*' 3*..;*1' !4' 2!3' 4&.!=*' -!.5' A2*(*' &=*' !43.(0-.!/4' !4' (2*./(!-' 4' @T?' 2*' 1*;!=*(*1' &4' /(&.!/4' /4'<*2&;,' /,' .2*' (*3./(&.!/4'/,' 3-2//;3'&, ' " N' (= ' *3!1*3'.2!3'.2(**' /.2*('37**-2*3'&(*'&..(!<0.*1'./'2!6' 2*3*' &(*'7&4*>5(!-3'/4' /43.&4.!43' 2;/63'&41' /43.&4.!4*'37/D*4'&.' (*=*3'!4' @T?' $N' &41' $$' " !3' .&-.' &41' -;*=*(4*33' 1!3F .!4>0!32' 2!6',/(6' .2*' /.2*('7&4*>5(!-&;' A(!.*(3'/,'.2&.'&>*

.04/;703' 4' (**D' 65.2/;/>5' .2*' 3/4' /,' 3*!114' &41' 2,14' .2*' 1&0>2.*(' /,' (&3' &41' (!.2B&' ,.*(' 2!3' <!(.2' 2*' A&3'.2(/A4'<5'2!3'6/.2*('!4./'.2*' 3*&' <0.' 2!3',&.2*('(*3-0*1'2!6'&41'<(/0>2.' 2!6'./' ;.2!/7!&' ./' 2!3' 1&0>2.*(' *4.2 3 D56*' 2*4' 2*' A&3'>(/BA4' 07' 41!03' .2*' 203F <&41'/,' *4.2*3!D56/'>&=*' 2!6'/4*' /,' 2!3' 1&0>2.*(3'!4' 6&((!&>*'<0.' 2*' 1*3!(*1' .2*' /.2*('&3'A*;;' &41'A&3'&--/(1!4>;5'<&4!32*1' &41'-&6*' A!.2' 2!3' 3/4' 36J(03'/(' 66&" (&103'./' .2*' 2(&-!&4'D!4>' >,,!0" 03' !4' /*/.!&' 3' 30--*33/(' ./' .2!3' D!4>' 2* 6&(-2*1'./' .2*'&33!3.&4-*' /,' 2!3' *&8.*' .2*' ;*03!4!&43' &>&!43.' .2*' .2*4!&4' (*-2" .2*03' <0.' A&3' 3;&!4' A!.2' 2!3' 3/4' & " /) ' --/(1!4>'./'&4/.2*('3./(5' 66&(&103'&41' (*/2.2*03'</.2' ,*;;' &41' .2*' -/4.*41!4>' &>(.!*3' &>(**1' .2&.' .2*' ;*03!4!&43'32/0;1'30<6!.'./' .2*' .2*4!&43' <0.'32/0;1'(*.&!4' .2*' *0-;03!=*' 307*(!4.*4F 1*4-*' /,' .2*' 653.*(!*3' /,' ;*03!3' /,' A2!-2' 06/;703'A&3'&--/04.*1' .2*' ,/041*(' *' A&3'&;3/' 37/D*4' /,' &3'&' %A(!.*(' /,' -/43*" -(&.!/4&;' 2563 43' &41' &3' 2&=!4>' 1!3-/=*(*1' .2*' &(.' /,' -0;.!=&.!4>' .2*' =!4*3' &41' .(**3' !4

>*4*(&;' 2*' 0 6 /;7!13*' 2!3' 1*3-*41&4.3' %A*(*' .2*' 2*(*1!.&(5' 7(!*3.3' /,' .2*' ;*0"' 3!4!&4' (!.0&;

04&7;43' ' (**D' (2*./(!-!&4' </(4' &.' &(1!3' !4' CU')' 4' CNV' 2*' A(/.*' <!/F >(&72!*3' /,' .A*4.5".2(**' /;1*(' &41' -/4F .*6 7/(&(5' 72!;/3/72*(3' &41' 3/72!3.3' 4' 37!.*' /,' !.3' <&1' 3.5;*' &41' !.3' 307*(,!-!&;!.5' .2!3' </D' !3' /0(' -2!*,' &0.2/(!.5',/(' .2*' 2!3F ./(5' /,' .2*' */" ;&./4!3 6' /,' .2&.' &>*' *' 2&=*' &;3/' 3*=*(&;',(&>6*4.3' /,' 2!3' -/4.!40&F .!/4' /,' .2*' -2(/4!-;*' /,' *(*44;03' *0!7703' 2!3' -/4.!40&.!/4'!4',/0(.**4'</D3' -/=*(*1' .2*' 7*(!/1' ,(/6' @?R' ./' CNC') (&41' A&3' 6 0-2' 03*1' <5' L/3!6 03

04*03' ' * ' 3&' !

0416;&' ' 6

07&.(!13*' 2*' 6*6<*(3'/,' .2*' &4-!*4.' 4/<;*' ,&6!;!*3' /,' ..!-&' ,.*(' .2*' &</;!.!/4' /,' (/5&;' 7/A*(' .2*5' ,/041' .2*6F 3*;=*3' !4' *0-;03!=*' 7/33*33!/4' /,' 7/;!.!-&;' (!>2.3' &41' 1!3.!4>0!32*1',(/6' .2*' / G / ' /(' &>(!-0;.0(!3.3' &41' .2*' 5 1' /(' 6*F -2&4!-3' 2*' -/43.!.0.!/4' /,' /;/4'1*7(!=*1' .2*6' /,' .2!3' 7(!=!;*>*' 0.' .2*!(' ;&41*1' 7(/7*(.5' &41' .2*' 7(!*3.;5' 1!>4!.!*3' A2!-2' .2*5' 2&1' 7/33*33*1' /,' /;1' &330(*1' .2*6' &' -*(.&!4'!4,;0*4-*' ,/(' &' -/43!1*(&<;*' .!6*

072*603' /4' /,' 3*!1/4'&41' 0(/7&' 1&0>2.*(' /,' ;.B03' 203<&41' /,' &/4/6*' .2*' 3!3.*(/,' *(&-;*3' !3',&.2*(' -/4,*((*1' /4' 2!6' .2*' >!,.' /,' 6/=!4>' 3/' 3A!,.;5' /=*(' .2*' 3*&' .2&.' 2!3',**.' (*6&!4*1'1(5' *' A&3' /(!>!4&;;5' /4*' /,' .2*' ;4B**' /,' &4 7*43' !4' 2/-!3' <0.' &,.*(A&(13' 3*..;*1' /4' .2*' 7(/6/4./(5' /,' 3*4&(06' !4' &-/4!&' &41' .//D' 7&(.' !4' .2*' &;51/4!&4' 204.' &41' .2*' *07*1!.!/4' /,' .2*' (>/4&0.3' 2*4' .2*' (>/4&0.3'-&6*'./'.2*';&D*' /,' (!./4' (!./4' >&=*' 06/;703'&;-;/1' /,' *&(.2' &41' *1*&' 7(/72*3!*1' .2&.' !,' 2*' .2(*A' .2!3' !4./' .2*' *4.(&4-*' /,' .2*' ;/A*(' A/(;1' &.' 3*4&(06' 2!3' 1*3-*41&4.3' /,' .2*' .*4.2' >*4*(&.!/4' A/0;1'<*' 6&3.*(3',' !<5&' 2*' -;/1' 2/AF *=*(' A&3' ;/3.' !4' .2*' !3;&41' /,' 2*(&' &41' 2!3' 1*3-*41&4.3' A*(*' -/67*;;*1' ./' 2/;1' 7/33*33!/4' /,' .2!3' !3;&41' ,(/6' A2!-2' &..03' -&6*' ,/(.2' &41',/041*1' 5(*4*' !4' !<5&

4721(!14' 8$9' /4' /,' 3-25;03' .2*' >(*&.'.(&>*1!&4' *' ,;/0(!32*1' &</0.' CVN' (&41' &,.*(' 2!3',&.2*(3' 1*&.2' 70.' /4' .2*' 3.&>*' ,/0(' /,' 2!3' 7!*-*3' A2!-2' 2&1' 4/.' 5*.' <**4' 7*(,/(6*1' &41' >&!4*1' .2*' 7(!Q*' *' &;3/' *02!<!.*1' .(&>*1!*3' /,' 2!3' /A4' 4/.' A!.2/0.' 30--*33

8@9' ' (**D' 7/*.' &41' A(!.*(' /,' .2*' ;*0&41(!&4' &>*' &41' !4' .2*' ;*0&41(!&4' 3.5;*' *' A&3' </(4' &</0.' @U?' (&. 2&;-!3' !4' 0</*&' &41' 1!*1' 2/;1!4>' .2*' 7/3.' /,' ;!<(&(!&4' &.' .2*' -/0(.' /,' 4.!/'" -203' .2*' (*&.' D!4>' /,' 5(!&' *3!1*3' A/(D3' f/4' 65.2/;/>5' &41' 2!3./(5g' !4' 7(/3*' 2*' A(/.*' *7!-3' *;*>!*3' &41' *7!>(&63' !4' /<3-0(*' &41' 04,&6!;!&(' ;&4>0&>*' !3' 7/*63' A*(*' 4!0-2' =&;0*1' <5' .2*' /6&43' /(4*;!03' &;;03'!4'7&(.!-0;&(' .2/0>2.'=*(5' 2!>2;5' /,' .2*6'&41' .//D' 2!6'&3' 2!3' 6/1*;' !4' 2!3' /A4' *;*>!*3

072(&4V(' ' (**D' &(.!3.' </6' &.' /(!4.2' &</0.' ?N' ' *' A&3' *:0&;;5' 1!3.!4>0!32*1'&3'&'7&!4.*(' &41'&3'&'3-0;7./(' !4' <(/4Q*' &41' 6&(<;*' *' &;3/' A(/.*' &' .(*&.!3*' /4' 356 6*.(5' &41' ,/(6' 6/4>' 2!3' 3.&.0*3' /4*' /,' .2*' 6/3.' -*;*<(&.*1' A&3' .2*' J(!3'!4' A2!-2'!.' A&3' *&35'./'(*-/>4!3*' .2*' .2(**,/;1'-2&(&-.*(' .2*' 01>*' /,' 1!=!4*' <*&0.5' .2*' ;/=*(' /,' *;*4' &41' .2*' 3;&5*(' /,' -2!;;*3' 4' 2!3' 7&!4.!4>3' !,' A*' 6&5' <*;!*=*' .2*' &4-!*4.3' 2*' A&3' .2*' ,!(3.' A2/' >&=*' .(0*' *07(*33!/4' ./' .2*' >(&41*0(' &41' 1!>4!.5' /,' 1!=!4*' &41' 2*(/!-',(/6' f ;!45' > ' 000!=' @U' 000=' $@R g

472(1354*' # '

071;!3' 07/;!3' !3' -/07;*1' A!.2' (!3F ./72&4*3' &3' &' -2!*,' (*7(*3*4.&.!=*' /,' .2*' ;1' ..!-' /6*15' *' A&3' </6' &</0.' CC?' (&41' 1!*1' <*,/(*' .2*' *41' /,' .2*' *;7/44*3!&4' &(' *' 6&1*' 2!3',!(3.' &7F 7*&(&4-*' &3' &' 1(&6&.!3.'!4' 2!3' 3*=*4.**4.2' 5*&(' &41' -&((!*1' /,,' .2*' 7(!Q*' 3*=*4' .!6*3' --/(1!4>'./' &' <&1;5' &..*3.*1'3./(5' 2*' A&3' 1(/A4*1'!4' .2*' 3*&' <5' ;-!<!&1*3'!4'(*=*4>*' ,/(' 2!3' .(*&.6*4./,' 2!6'!4' /4*' /,' 2!3' 7;&53' *' 3.!;;' 2&=*' .2*' .!.;*3' &41' 3/6*' ,(&>F 6*4.3' /,',!,.**4'/,' 2!3' 7!*-*3' *' A&3' &.' ,!(3.'/4'.*(63'/,'!4.!6&.*',(!*4132!7'A!.2'2!3' -/4.*67/(&(5' (!3./72&4*3'<0.'&4'*3.(&4>*F 6*4.'&,.*(A&(13' 3*.' !4' &41' .2*' .A/' 7/*.3' &..&-D*1' *&-2' /.2*(' A!.2' >(*&.' <!..*(4*33' 07/;!3' !3' 7(&!3*1' <5' .2*' &4-!*4.3' ,/(' .2*' 37;*41/0(' /,' 2!3'!6&>!4&.!/4' .2*' -/2*(*4-*' A!.2' A2!-2' 2!3' 7;/.3' &(*'1*=*;/7*1' .2*' 2!>2' :0&;!.5' /,' 2!3' 7&.(!/.!36' .2*' >(&-*' &41' 6&K*3.5' /,' 2!3' ;&4>0&>*' &41' .2*' .*;;!4>' -2&(&-.*(' /,' 2!3' A!.' 2*' ,(&>6*4.3' .2&.' (*6&!4' 32/A' >(*&.' 6&3.*(5' /,',/(6' !D*' (!3./72&4*3' 2*' 6&1*' &4' &..*67.' ./' 3.*6' .2*' -0((*4.' /,' 6/(&;' 1*>*4*(&-5' 3*..!4>' !4' &.' 2!3' .!6*

47/67&3' ' (**D' 7&!4.*(' 4&.!=*' /,' !-5 4' A2/' ,;/0(!32*1' &</0.' CNN' ' *' A&3' .2*' ,/041*(' /,' .2*' !-5/4!&4' 3-2//;' /,' 7&!4.!4>' A2!-2' ;&!1' >(*&.' *672&3!3' /4' 7(/F ,*33!/4&;' D4/A;*1>*' f ;!45' > ' 000=' UV g

0(!7!1*3' 2*' .2!(1' /,' .2*' .2(**' >(*&.' ..!-' .(&>*1!&43' *' A&3' </6' !4' .2*' !3;&41' /,' D;C6!3' !4' CRN' (/4' .2*' =*(5

1&5 / .2 >(*&. <&..;* !3 ,&.2*(4*3&(" -203 !3 3&!1 ./ 2&= <**4 &.(&1*36&4 /(.&=*(4".**7*(2!3 6/.2*(;!./ &3*;;*(/, 2*(<3 !3 7&(*4.3 2/A*=*(603. 2&= 2&1 3/6 6*&43 K01>!4> <5 .2 ,&-. .2&. .2*5 >&= 2!6 &-&(*,0;>K 64&3.!-*10-&.!/4 ./ ,!. 2!6 ,/(.2 &.2;*.!- -/4.*3.3 ;#2!3 A&3 <*-&03 .2*5 2&1 6!3!4.*(7(*.*1 &4 /(&-;* >!=*4 .2*6 <*,/(2!3 <!(.2 A2!-2 7(/6!3*1 .2 -2!;1 -(/A43 /, =!-./(5 0(!7!1*3!3 3&!1!4 2!3</52//1(*&;;5./2&=* >&!4*1 .2*7(!Q 6 &7 0<;!- -/4.*3./, .2!3 D!41 <0. 6 ,&-. 2 A&3 1*3.!4*1 ./ A!4 =!-./(!*3 !4 & =*(5 1!,,*(*4. &(*4& * &33/-!&.*1 60-2 A!.2 .2* 72!;/3/72*(3 4&02><(3&41 /-(&.*3 A!.2 .2* ;&..*(/,

U) ' ' %-A A $
8 &7;*3 43*06 9

A2/6 2* *4K/5*1 &4 !4.!6&.* ,(!*4132!7 %10(!4> .2* A2/;* /, 2!3 ;!,* * &;3/ 2&1 !43.(0-.!/4 ,(/6 .2*3/72!3.3 (/.&><(&3&41 B<1!-03 203 2* (*-*!=*1 .2* <*3./, G*10-&.!/4 !4 72!;/3/725 &41 (2*./(!- .A&3 !4 2!3 .A*4.5",!,.2 5*&(+ CVV .2&. 2* ,!(3. 70. &. .*.(&;/>5 /4 .2* 3.&>* * 1!1 4/..=!4 &7(!Q* .!;;' 2!3 ,/(.5".2!(1 5*&(041 3** 63 !41**1 ./ 2&=* <**4 =!-./(!/03 /4;5 ,/0(.!6*3 !4 &!;B <0. 2* A&3 4/4* .2* ;*33 !41*,&.!>&<;* !4 A(!.!4> .(&>*1!*3 * .//D &;!=*;5 !4.*(*3. !4 .2* !67/(.&4. *=*4.3 &41 .2* 70<;!- :0*3.!/43 /, .2* .!6 *' <0. 7*(3/4&;;5 2* D*7. &;//, ,(/6 70<;!- ;!,* &=/!1*1 3/-!*.5 &41 ;!=*1 6/3.;5 !4 .2* *4K/56*4. /, &4 *0-*;;*4. ;!<(&(5 &6!1 2!3 3.01!*3 &41 7/*.!-&; -(*&.!/43

* A&3 .A!-* 04,/(.04&.* !4 2!3 6&(X" (!&>* &, &-. A2!-2 6&5 2&=* *4-/0(&>*1 2!6 !4 2!3 30(;5 043/-!&<;* A&53 !3 ,!(3. A!,* 2-*(;^ <* 2&1 ./ 1!=/(-* ;/(!4,!1*;!.5 2* < (* 2!6 .2(** 1&0>2.*(3 .2* 5/04> 3. /, A2/6 A2/ A&3 4&6*1 &,.*(2*(6/.2*(70. 3*=*(&; /, 2*(,&.2*(3 .(&>*1!*3 /4 .2* 3.&>* &,.*(2!3 1*&.2 !3 3*-/41 A!,* *;!./ 7&(.*1 ,(/6 2!6 &.2*(/A4 1*3!(* 4 CNT &.2* &>* /, U$ 2* ;*,. .2*43 !. A&3 3&!1 ./ >*. &A&5 ,(/6 .2* -*&3*;*33 &..&-D3 /, .2* -/6*1!&43 &41 ,(/6 2!3 1/6*3.!- .(/0<;*3 * A*4. ./ &>4<3;& !4 2*33&;5 A2*(* 2* A&3 (*-*!=*1 &3 & >0*3. /, .2* -!.5 2*4-* 2* A*... /4 ./ *;;& ./ .2* -/0(. /, (-2<;&0 g D!4> /, &-*1/4!& A2/ 2&1 >&.2*(*1 (/041 6 & 406<*(/, 7/*.3 &41 &(.!3.3 " &41 A2/ .(*&.*1 2!6 A!.2 >(*&. (*37*-. *(* 2* 37*4. .2* ;&3. ./ 5*&(3 /, 2!3 ;!,* &41 1!*1 & CNV --/(1!4> ./ & 3./(5 ,/(A2!-2 .2*(* !3 ;!..;* &0.2/(!.5 2* A&3 ./(4 ./ 7!*-*3 <5 & 7&-D /, 2/0413 A2*4 (*.0(4!4>,(/6 & 4/-.0(4&;,*3.!=!.5

2* 406<*(/, 3 .(&>*1!*3 !3 =&(!/03;5 >!=*4 &3 3*=*4.5",!=* 3*=*4.5"(!>2. &41 !4*.5".A/ !>2.**4 2&=* -/6* 1/A4 á03 .2* L " < (/--26 9(.2* &((!=&; /, !/45303 &. 2*<*3 &41 ;!* 60(1*(/, *4.2*039 < < " , .2* 8/(*6<72</4 /, !.2*43 7(/.*-.!4> .2* 1*3-*41&4.3 /, *(2" ;*3 &>&!43. .2* 7*(3*-0.!/4 /, 0(53.2*039 + " " .2* 8/(.2* 6/.2*(3 /, .2* *=*4 2!*,3 A2/ 2&1 &;;*4 <*,/(* 2*<*3 &. A2/3* 7(&5*(3 2*3*03 -/67*;;*1 .2* 2*<363 ./ <0(5 .2* 1*&1 2*(/*39 1 " (1 " "1 (+ 'G" 9(.2* + & .2* (/5&; 2/03*/, (/5&,.*(.2*-/4:0*3./, .2*-!.59 .2* , " 8 /-&;;*1 &,.*(.2*-2/(03 /, 2/*4!-!&4 6&!1*43 &4 !4-!1*4. !4 .2*3./(5 /, .<<-;*3 &41 <;54!-*39 &41 & 3&.5(!- 1(&6& .2* $: .2*/4;5*0&67;*/, .2!3 3.5;* /, -/67/3!.!/4 A2!-2 2&3 30(=!=*1 2* *&(;!*3./, .2*3* 7!*-*3 !4 7/!4./, .!6* !3 .2* 7*(,/(6*1 !4 C R .!3 &;3/ 4/.!-*&<;* <*-&03* &;.2/0>2 4/. & 3&.5(!- 1(&6& !4 .2* 7(/*(3*43* !. 2&3 -/6!- ,*&.0(*3 ./A&(13 .2* *41 &41 &3 &-.0&;;5 7*(,/(6*1&. .2* *41 /, & .(&;/>5 !4 7;&-* /, & 3&K((!- 1(&6& 2* (/4 .2* /.2*(2&41 A&3 A(!..*4 !4 &-*1/4!& !4 .2* 7/*. 3 ;&3.5*&(3 &41 7*(,/(6*1 &,.*(

2!3 1*&.2 &. .2 3&6 .!6 &3 .2*' (1 " 2* >*40!4*4*33 /, .2* 7(A&3 1/0<.*1 *=*4 !4 &4.!:0!.5 >(*&. 406<*(/, ,(&>6*4.3 2&=* 30(=!=*1 ,(/6 &</0. 3!0.5 7!*-*3 &41 !4 7&(.!-0;&(,(/6 .2* , ((" 2* .(&>*1!*3 /, 0(!7!1*3 &(* /, =*(5 04*:0&; 6*(!. /6* /, .2*6 , /(!43.&4-* .2* : &41 .2* (&..&!4 .2* ;/,.5 3.5;* /, /72/-;*3 /.2*(3 &<(/&-2 !. &3 .2* &41 ' (1 " "+ 0./.2*(3 &3 ,/(!43.&4-* .2* " (&41 9 &(* =*(5 -&(*:*33;5 70. ./F >*.2*(!3 3.(/4>7/!4. !3 4/. &(.!3.!-/67/3!.!/4 A*;; -/4.(!=*1 1!37/3!.!/4 /(.2* -/2*(*4. 1*3!>4 A2!-2 >!=*3 .2* !44*(6/.!=* /, .2* &-.!/4 . !3 30,,!-!*4. !4 3077/(./, .2!3 3.&.*6*4. ./ -&;; &..*4.!/4 ./ 2!3 2&<!. /, 7(*,!0!4>./ *=*(5 7!*-* &7(/;/>0* *07;&!4!4> .2* 3./(5 ./ .2* 37*- G.0./(3 &41 -/44*-.*1;//3*;5 8!, &. &;;9 A!.2 .2* 7;&5 ./ .2* =*(5 3;!>2. -/44*0!/4 <*F .A**4 .2* -2/(03 &41 .2* &-.!/4 &41 ./ 2!3 ;!D!4>, /(<(!4>!4> !4 & - " ./ -0. &!1,,!-0;. D4/. 4 .2* /.2*(2&41 !. 6 03. <* &;;/A*1 .2&. 0(!7!1*3 !3 &6&3.*(!4 .2* &(./, 1*=!3!4>7&.2*.!-3!.0&.!/43 &41 32/A3 *0.(&/(1!4&(5 7/A*(!4 (*7(*3*4.!4> 206&4 7&33!/4 *37*-!&;;5 .2* (*3!3.;*33 6!>2./, ;/=* !4 .2* -&3* /, A/6*4 4 2!3 (*;!>!/03 =!*A3 2* 1!,,*(3 *33*4F .!&;;5 ,(/6 ,,;3-25;03 &41 /72/-;*3 !.2 0(!7!1*3 .2* >/13 &(* 4/. 6/(&;7/A*(3 &41 ,&.*! !3 4/.3/ 60-2 .2* (*30;,/, & 2!>2*(1!37*43&.!/4 &3 & 7*(=*(3*4*33 /, & &--!1*4. 2* ;&-D /, >(&41*0(!3 &;3/ & 7/!4. A2!-2 1!3.!4>0!32*3 2!6 ,(/6 2!3 >(*&. 7(*1*F -*33/(3 43.*&1 /, .2*!(30<;!6* !1*&3 2* >!=*3 03 6&0!63/, A/(;1;5 A!31/6 /,.*4./ &;; &77*&(&4-* 1(&>>*1 !4 A!.2/0./--&3!/4 2* 6/.!=*3/, &-.!/4 &(* 4/. 3/ 70(* &3 !4 K 3-25;03 &41 /72/-;*3 &41 .2* -2&(&-.*(3 /, .2* 2*(/*3 &(* 4/. (&!3*1 &</=* .2* ;*=*;/, /(1!4&!5;!, * <0. <(/0>2.1/A4./ !. / ,/41 !3 2* /, >!=!4>7(/6!4*4-* ./ .2* ,&0;.3 /, A/6*4 .2&. 2* 2&3 <**4 -&;;*1 & A/6&4* 2&.*(*7&53 6/(* &..*4.!/4 ./ .2* -/0(3* /, 7/;!.!-3 .2&4 2!3 7(*1*-*33/(3 &41 !3 !41**1 !4,;0*4-*1 <5 7/;!.!-&; -/43!1*(&F .!/43 !4 2!3 3D*.-2*3 /, -2&(&-.*(4 1*,*(*4-* ./ .2* 1*6/-(&.!-;*&4!4>3 /, 2!3 70<;!- 2* 6&D*3 2!3 D!4>3 -(0*; .5(&4.3 A!.2/0.1!>4!.5/(6&K*3.5 &41 .2* 2*(/*3 /, .2* *;/7/44*3* !4 7&(.!-0;&(2* .(*&.3 A!.2 04-/4-*&;*1 1!3;!D* !3 1!&;/>0*3 &(* /,.*4 /=*(;/&1*1 A!.2 (2*./(!- &41 3/72!3.!-&; 1!&;*-.!- 0. !4 37!.*/, &;; .2*3* ,&0;.3 ,/(A2!-2 .2* 37!(!./, .2* &>* !3 6&!4;5 (*37/43!<;* 2* !3 &>(*&. 7/*.!-&; >*4!03 *A&3 =*(5 7/70;&(A!.2 2!3 -/4F .*67/(&(!*3 &41 2&3 <**4 3.!;; 6/(* 3/ A!.2 30--**1!4>*4*(&.!/43 2* .! &>*" 1!&43 /, .2* 4*0.&>* 6&1* 2!6 .2*!(6/1*; &41 7&..*(4 A!.2/0. :0&;!,!-&.!/4 &41 .2* /6&4 7/*.3 7(*,*((*1 7&(&72(&3!4> 2!3 1(&6&3./ .2/3*/, .2* /.2*(.(&>*1!&43 0(/7*8 &.9 ,!>0(*!4 (**D 65.2/;/>5 4 /6*(32*!3 .2* 1&0>2.*(/, 2/*4!0 !4 .2* ;&.*(3./(5 /, .2* 2-*4!-!&4 >*4/(&41 3!3.*(/, &1603 @*0 !4 .2* 32&7* /, &<0;; -&((!*1 2*(/=*(.2* 3*&/ (*.*A2*(* 32* </(* 2!6 !413 2&1&" 6&4.253 &41 &--/(1!4> ./ .2* ;&.*(;*>*41 &(7*1/4&;3/ L*03 ;*,.2*(A!.2 3. (/4 D!4> /, (*.* A2/ <(/0>2. 07 2)(3/43" &41 ;*,. .2*6 2!3 D!4>1/6 2* A&3 A/(32!77*1 !4 (*.* 041*(.2* 4&6* /, *;;/.!3 *37*-!&;;5 &. B/(.54 A2*(* 32* A&3 3077/3* ./ 2&=* <**4 A*11*1 A!.2 L*03 &41 ./ 2&=* </(4*2!6 2*(3/43 ,*3.!=&; -&;;*1 *;;/.!& A&3 2*;1 !4 2*(2/4/0(&. A2!-2 2*(</4*3 A*(* -&((!*1 !4 &A(*&.2/, 65(.;* 0'1 + ' 0("&!03 /4 /, *-!3. 03 /4*/, .2* 7!>14! &41 A!.2 .2 4 ;03 .2* -/67&4!/4 /, ! 6*1*3 <*,/(* (/5 0(5-;*& #9 : 2* 40(3* /, 1533*03 A2/ <(/0>2. 07 2!3 /4 *;`" 6 -203 d 2*4 2*(6&3.*(2&1 (*.0(4*1 2/6* !4 .2* 1!3>0!3* /, & <*>>&(32* (*-/>4!3*1 2!6 <5 &3/&(A2!;* <&.2!4> 2!* ,** 4 &2!4 , (/6 2!6 32* D*7. 3!;*4-* &41 &,.*(A&(13 A&3 .2* ,!(3. A2/ <(/0>2. *41;/7* .2* 4*A3 /, 2*(203<&41 3 (*.0(4 &41 /, .2* 3;&0>2.*(/ , .2* 30!./(3' 0(51;-* % (0(,416* 0(BB;03 8$9 /4/, ?3*!1?4&41 3.5" 7 ;3*& D!4> /, .2* ?(?7>3 /, /3 * A&3 3;&!4<5 *(-; 3 A2/ 2&1 <**4 1(!=*4 /4 ./ .2* -/&3. /4 2!3 (*.0(4 ,!(/6 (/5 2*3.(0>>;* A&3 &2&(1 /4* <0. *(&-;*3 A&3 &33!3.*1 <5 L*03 2* 1&0>2.*(/ , 0(575;03 2&;-!17* <*-&6* 6/.2*(/ , 2*33&;03<5 *(&-;*3 8@9 /4/, *; 7203&41 3.B -2 3" .5/-2* <(!<*1<5 2*(<(/.2*((!&6 A!.2 .2* 7(*3*4. / , & >/;1*4 =!4* 7*(30&1*1 0!575;03 ./<(!4> .2* ;&3. 30--/0(./ .2* (/K&43 32/(.;5 <*, /(* .2* ,&;; / , .2* -!.5 ,.*(7*(,/(6!4> 1**13 /, <(&=*(5 2* ,*;; &. .2* 2&41 /, */7. ; 603 8 9 /4 /, 03*6/4 D!4> /, (6 4! 4 !4 2*33&;5 /4* /, .2* 30!./(3 /, *;*4 * A&3 &6/4> .2* <(&=*3. /, .2* (**D 2*(/*3 A2/ ,/0>2. <*, /(* (/5 &41 /, 2!3 /A4 &--/(1/,,*(1 ./*4>&>* *-./('!4 3!4>;*

-/6<&. ;<.<;&.*(3./(5<;&77*&;3!4-/44*0!/4A!.2.2;A/(32!7/,!/4,343.2;1!=!3!/4/,.2;(/K&4 37/!;2;(*F-*!=*1;&4!6&>;/,!/45303 6&1*;<5;*72&*3.03;&41;7(*3*4.*1;./&(1,.403;2!32&1;<**4;D*7.!4;&-2*3.;&3;&;&1!06;2*4;0(575;03;/7*4*1;.2;-2*3.;&41;<*F2*;1;.2;!6&>;2*;,*;;;!4./;&;6&14*33;2*;*;72!-;/(&-;*;7(/6!3*1;.2&.;2*;32/0;1;<*;2*&;*1;!,;2*;1*1!-&.*1;.2*;!6&>*;!4*&;37/.;A2*(*;6*4/,,*(*1;<&(<&(!-;3&-(!,!-*3;-F-/(1!4>;5;2*;1*1!-&.*1;!.;&.;(?*;!4*;-2&!&;A2*(*;&4;/,,*(!4>;/,;.2*;,&!(*3.;5/0.2;&41;,&!(*3.;=!(>!4;A&3;6&1*;&440&;;5;./;(.>*6;3;2*;<;//15;&-.;&3;&</;!32*1;&41;.2*;>*4.,*;3*(=!-*;/,;!/45303;!4.(/10-*1;!4;!.3;7;&-*

4(.3 ->3;#(g L;Z/4;/,;K&O;&41;*-6*33&;;#.,;8@9

0(53.2*03;/4;/,;.2>4>;03;&41;!-!77>;#;$ &;*;A&3;D!4>;/,;

5-*43*;&41;.2(/0>2;.2*-044!4>;/,;*(&;>/.7/A*(;/=*(*(>-;>3;&41;!67/3*1;07/4;2!6;.2*;-*;*<(&.*1;.A*;=*;&</0(3;4;70(F30!4>;.2*;-2!;1(*4;/,;*(&-;*3;&41;&..*67.F!4>;./;<(!4>;&</0.;<5;,(-*;.2*!(;*070;3!/4;,(/6;..!-&;2*;A&3;1*,*&.*1;&41;3;&!4!4;2!3;,;!>2.;<5;5;;03;#;/+):

0(5.03;8$9;/4;/,;>;,.4*03;,&.2*(;/,;72!.03;&41;/,;V$;D!4>;/,;-2;,&!4;2*33&;5;/(;*33*4!&;--/(1!4>;./;&;&.*(;3./(5;2*;1A*;.;!4;0</*&;*;A&3;/4*;/,;.2*;6/3.;,&6/03;&(-2*(3;!4;&4.!F:0!.5;--/(1!4>;./;/6*(;2*;=*4.0(*1;./;-2&;;*2>*;7/;;/;./;&;-/4.*3.;/,;3D!;;;&41;A&3;3;&!4;!4;2!3;5/0.2;,/(;2!3;7(*F3067.!/4;4;.2*;;&.*(;3./(5;2*;&41;2!3;3/4;72!.03;&(*;3;&!4;<5;>(>-;*3;<!3;,/(6*(;1!3-!7;*;!4;&(-2*(5;,/(;2&=!4>;!4F3/;*4.;5;(*,03*1;2!6;2!3;1&0>2.*(;/;*;!4;6&((!&>*;#;2!;72!.03;>&=*;2!3;</A;./;1533*03;A2/;3;*A;.2*;30!./(3;A!.2;!.

>GH;4*;(.2*. "!;#;.$ $*";>(43><;43;2*;,&.2*(;/,;*--;*3!&3.!-&;;2!3./(5;*;A&3;</(4;&.;3*3(*&;!4;2/*F4!-!&;!4;@?C;/;4;R$V;2*;<*-&6*;<!32/7;/,;.2&.;-!.5;&41;1!*1;!4;CN;*;A&3;/4*;/,;.2*;6/3.;;*&(4*1;6*4;/,;2!1;.!6*;&41;2/;13;&;2!>2;7/3!.!/4;</.2;&6/4>;.2*;2!3F./(!&43;&41;.2*;&7/;/>!3.3;/,;2(!3.!&4!.5;!3;>(*&.*3.;A/(D;!3;2!3;20(-2;!3./(5;2!3;A/(D;!3;!4;.*4;</!D3;<*>!44!4>;A!.2;.2*;(!3*/,;2(!3.!&4!.5;&41;-/6!4>;1/A4;./;$C;) .;A&3;60-2;03*1;<5;&.*(A(!.*(3;&41;A&3;&</0.;CN;)(.(&43;&.*1;!4./;&.!4;<5;5(&44!03;0,;403;/,;:0;;*;&;A2/;-/4F.!40*1;!.;1/A4;./;.2*;1*&B/,;2*/1/3!03;,) ZV9;2*;&7/;/>*.!-;A(!.!4>3;/,;03*<!03;&(*;.2*;,;!.**4;</!D3;&41;.2*;5"1 9"1=;!4;.A*4.5;2*5;&(*;</.2;<0.;*37*-!&;;5;.2*;,/(6*(;&(!-2;3./(*2/03*;/,;!4,/(6&.!/4;/4;&4.!:0!.5;7&(.!-0;&(;5;/4;.2*;72!;/3/725;&41;(*;!>!/4;/,;.2*;(**D3;,;3.!;;>(*&.*(;!67/(.&4-*;!3;2!3;2(/4!-;*;&(;"M";&;A/(D;,/041*1;07/4;*0.(&-.3;,(/6;.2*;4/A;;/3.;A(!.!4>3;/,;7(*=!/03;2!3./(!&43;.3;,!(3.;</!D;.2*;$(;"2;-/4.&!43;&>*4*(&;;*.24/>(&72!-&;;!3./(5;/,;.2*;A/(;1;&((&4>*1;,(/6;.2*;-(*&.!/4;./;@V;2*;3*-/41;-&;;*1;.2*;$(;"1;$;"";-/43!3.*1;/,;7&(&;;*;-2(/4/;/>!-&;;.&<;*3;/,;.2*;4&6*3;/,;(0;*(3;&41;.2*;6/3.!67/(.&4.;*=*4.3;3!4-*;@N$U;4;5;,(&>6*4.3;/,;.2*;/(!>!4&;A/(D;(*6&!4";<0.;A*;2&=*;</.2;</!D3;!4;&4;(6*4!&4;.(&43;&.!/4;&41;.2*;3*-/41;!4;.2*;&.!4=*(3!/4;/,;!*(/4560 3;6/4>;.2*;/.2*(;A/(D3;/,;03*<!03;A*;6&5;6*4./!4/!4M;$$9;3D*.-2;/,;.2*;./F>(&725;/,;&;*3.!4*;!4;.A/;</!D3;2*;3*-/41;&;/4*30(=!=*3;</.2;!4;.2*;(!>!4&;&41;!4;.2*;.(&43;&.!/4;/,;!*(/4560 3;#f;<!/>(&725;!4,/0(;</!D3;/,;.2*;*67*(/(;/43.&4.!4*;A2/;2&1;32/A4;,&=/0(;./;03*<!03;&41;2&1;<**4;<&7.!Q*1;<5;2!6;2!3;A/(D;!3;3.(/4>;5;-/;/0(*1;<5;7*(3/4&;,**;!4>;8 9;7&4*>K((!-;/4;/43.&4.!4*03.;2;(;&(**D;A(!.*(;/,;(/6&4-*;*;A&3;&;4&.!=*;/,;/43.&4.!4/7;*;&41;<*F;/4>*1;./;.2*;077*(;-;&33;!3;!3;7*(2&73;./;<*;&33!>4*1;./;.2*;T.2;-*4.0(5;) *;A&3;.2*;&0.2/(;/,;&(&.2*(;.&3.*;*33;;/=*;3./(5;!4;*;*=*4*;</!D3;&</0.;536 4;3;&41;536;4*8@9 9(;$"";&7F7/!4.*1;&(-2<!32/7;/,;2*33&;4-&!4;$$B;9;(*=!/03;5;./;2!3;2*;2&1;<**4;&;1*&-/4;&41;7(/,*33/(;/,;(2*./(!-;!4;2!3;4&.!=*;-!.5;&41;2&1;(!..*4;&;-/67(*F2*43!=*-/66*4.&(5;/4;2*;/6*(!-7/*63;2*;-/66*4.&(5;A2!-2;!3;-2&(&-.*(!Q*1;<5;;*&(4!4>;(*6&(D&<;*;,/(;.2&.;&>*;!3;6&1*;7/,;*0.(&-.3;,(/6;/;1*(;A(!.*(3;&41;!3(.2*(,/(;/,;*;!4;>=*;2*;&7/;/>*.!-;A(!.!4>3;/,;03*<!03;&41

1&53 &,.*(.2* .*(6 / ,/,!2-* 2&1 -/ 6 * ./ &4 *41 .2*3* ,04-.!/4&(!*3 !330*1 ./ &;; A2/ 6 !. 6!>2. -/4-*(4 & 70<;!- 4/.!-* ./ ;&5 <*,/(* .2* 6 &45 -/ 6 7;&!4.3 .2*5 6 !>2. 2&=* ./ 6&D* &>&!43. .2* (*.!(!4> /, -!&;3 4 -&3* 30-2 -/ 6 7;&!4.3 A*(* 6&1* .2* 6 &..*(A&3 <(/0>2. ./ &4 !330* <5 ;*>&;7(/-*10(* / /,,!-!&; A&3 &;;/A*1 ./ ;*&=* .2* -/04.(5 /(.&D* &45 6 *&30(* &,,*-.!4> 2!3 7(/7*(.5 /(.&D* &4/.2*(/,,!-* <*,/(* 2!3 &--/04. A&3 >!=*4 f (!3./.;* $ " (" !CRg

4.(17;43 / 6&4 2!3./(!&4 A2/ .//D 7&(.! 4 .2* *07*1!./4 /, 0;!&4 &>&!43. .2* &(.2!&43 !4 ? 4 UR 041*(&;*4.!4!&4 2* A(/.* &41 1*1!-&.*1 ./ .2!3 *67*(/(&3D*.-2 /, /6&4 2!3./(5 & (($ " !4 .*4<//D3 ,(/6 .2* *&(;!*3. .!6*3 ./ .2* 1*&.2 /, /=!&4 !4 ?C 2* ;&4>0&>* !3 3!67;* &41 .2* 4&((&.!=* !4.*;;!>*4. &41 !67&(.!&; 2* A/(D A&3 03*,0; &41 -/4-!3* &41 <*-&6* =*(5 7/70;&(0--**1!4> A(!.*(3 1/A4 ./ .2* !11;* >*3 &41 *37*-!&;;5 !*(/4560 3 &41 (/3!03 03*1 !.' &' >(*&. 1*&; .' A&3 3*=*(&;' .!6*3 .0(4*1 !4./ (**D !41**1 &3 *&(;5 &3 RN<5 6&4!<3 A2/3* .(&43;&.!/4 2&3 <**4 7(*3*(=*1 &;6 /3. *4.!(* 2* A/(D /, 0.(/7!03 A&3 *4F ;&(>*1 &41 -/4.!40*1 <5 &0;03 !&- 403 A2/ !4 .2* ;&3. 7&(./,.2* R.2 -*4.0(5 &11B 3!0 <//D3 ./ !. .' A&3 &;3/ 03*1 !4 .2* (/(/;;*-.!=* !3F ./(5 &41 2&3 -/4.!40*1 ./ <* &,&=/0(!.* 3-2//;</D 1/A4 ./"/0(/A4 1&5

=&41*(8 (9 " .2* >/!1 6&49 &' ,!>0(* !4 &.!4 65.2/;/>5 * A&3 3&!1 ./ <* .2* 3/4 /, *(6*3 &41 &4 (-&1!&4 456 72 !0.5 5*&(3<*,/(* .2* (/K&4 &(2* ;*1 &* *;&3>!&4 -/;/45 ./ .!06 ,(/6 &;;&4.; 4 !4 (-&1!& &41 ,/041*1 &' -!.5 &;;&4.*06 4*&(.2* !<*(/4 .2* 2!;; A2!-2 A&3 &,.*(A&(13 4&6*1 &,.*(!.' .2* &;&.!4* 0(.2*(!.' A&3 3&!1 .2&.' 2* .&0>2. .2* (01* !42&<!.&4.3 /, .2* -/04.(5 A(!.!4>' 603!- &41 /.2*(&(.3 &41 !4.(/F 10-*1 ,(/6 (-&1!& .2* A/(32!7 /, -*(.&!4 >/13 !4 7&(.!-0;&(/, &4 A2/6 .2* .&;!&43 -&;;*1 &0403 A!.2 .2< ,*3.!=&;' /, .2* 07*(-&;;& A2!-2 A&3 2*;1 !4 2! 2/4/0(=&41*(A&3 A/(32!77*1 &. /6/ &6/4> .2* 2*(/*3 /, .2* -/04.(5 # " &41 2&1 &4 &;.&(/4 .2* =*4 .!4* 2!;; 0..2* A2/;* 3./(5 !3 *=!1*4.;5 &4 !4=*4.!/4 /, (**D 3-2/;&(3 A2/ 1*(!=*1 .2* ; ,(/6 .2* (-&1!&4 ; ! 2* 4&6* 9 " !3 & 6*(* .(&43;&.!/4 /, .2* .&;!&4 9 " A2!;* &(6*4.& !3 &4 &4-!*4. .&;!&4 >/11*33

&;;&3 .2* 3/4 /, =&41*(!3 !4 ;!D* 6&44*(&' -(*&.!/4 /, .2* 7/*.3 4 *(>!; 2* 6&(-2*3 &. .2* -/6 6&41 /, 2!3 ,&.2*(./ &33!3. 4 !!3 &41 ,&;;3 !4 3!4>;* -/6<&. A!.2 06 03

=*4.43 /(7(7/*(;5 /" 9 " 8;0-D5 /(2&775 *=*4.9 4 /6&4 (*;!>!/4 & >/1 /, (0(&;7(/37*(!.5 ;!D* .2* (**D 1 (" A2/3* !6&>* A&3 !4 ;&.*(.!6*3 .(&43,*((*1 ./ .2* .&;!&4 1*!.5 4 .2* -/0(3* /, .!6* " 9 " >&!4*1 .2* 6/(* >*4*(&; 6*&4!4> /, .2* ,(!*41;5 ,/(.04* A2!-2 3*-0(*3 & ;0-D5 !330* ./ 041*(.&D!4>3 2* >/1 2&1 & .*67;* /, 2!3 /A4 /4 .2* $ " !4 .2* 4*!>2</0(2//1 /, .2* &4.2*/4

=1-&.; 8.2/3* A2/ &(* 306 6/4*1 /(-&;;*1 /0.9 2* .*(6 &77;!*1 !4 .2* /6&4 &(65 ./ 3/;1!*(3 A2/ 2&1 3*(=*1 .2*!(.!6* &41 /<.&!4*1 .2*!(1!36!33&; <0. A2/ /4 .2* >*4*(&; 306 6/4!4> .2*6 <5 4&6* (*.0(4*1 ./ .2* 3*(=!-* /4 -/41!.!/4 /, (*-*!=!4> -*(.&!4 7(!=!;*>*3 2*3* A*(* *0*67.!/4, (/6 &;;* 3*(=!-* *0-*7.5 !4 <&..;* &(&4D &41 7&5 *:0&; ./ .2/3* /, .2* -*4.0(!/<3 &41 7(/37*-. /, &1=&4-*F 6*4. 2* *4;!3.6*4. /, A&3 *37*-!&;;5 -/66/4 !4 .2* -!=!; A&(3 /6*F .!6*3 .2*5 A*(* 1!3.(!<0.*1 !4 .2* ;*>!/4 3/6*.!6*3 .2*5 ,/(6*1 &' 37*-!&; &41 3*;*-. (//7 1!=!1*1 !4./ " d * 3/6*F .!6*3 ,!41 .2*6 !4 !3/;&.*1 !43.&4-*3 041*(.2* *&(;5 67!(* 4 .2* 1!,,*(*4-* <*.A**4 .2*6 &41 .2* " D

=?-&. ?8-&;;!4> /0.9 2* .*(6 ,/(.2* 3/;*64 304/643 >!=*4 ./ .2* .0.*;&(5 >/13 /, &' <*3!*>*1 -!.5 ./ ;*&=* !. &41 ./ 6!>(&.* ./ /6* "* 2* /6&43 &;A&53 =/A*1 &. .2* 3&6* .!6* ./ <0!;1 .2*6 &' .*67;* &. /6* 4 *0&67;* /, &' 1*!.5 H *=/D*1 I !4 .2!3 A&5 A&3 04/ > 4& A2/ A&3 /(!>!4&;;5 A/(32!77*1 &. *!! <0. &,.*(A&(13 2&1 &' .*67;* !4 /6* /4 .2* =*4.!4*

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OB1(& 4 &;-/=* /(3*6!-!(-0;&(*OF .*43!/4 /, .2* -/;/44&1* !4 &' (**D 1: " .' A&3 ,0(4!32*1 A!.2 3*&.3 /4 A2!-2 .2* 72!;/3/72*(3 030&;;5 3&. ./ .&;D A!.2 .2*!(1!3-!7;*3 4 7(!=&.* 2/03*3 .2* - A&3 &' (//6"!4.*41*1 ,/(-/4=*(3&F .!/4 ,!..*1 A!.2 &' <*4-2 (044!4> (/041 .2* A&;;

O*(-!.03 O (% - 1 (&

O!;!06 8 _ <&4!326*4.9 8$9 6 6/4> .2* (**D3 *O!;* A&3 .2* ;*>&; 04!326*4. ,/(2/6!-!1* # .' A&3 &;3/ &. .!6*3 &' 7/;!.!-&; 6*&30(*

&6/#+&' +!/+ 221' 3' # +!' 69' 7 2' &!4 #0'* 3 +(' 3&' 8$#' ''1'5 #$' #' 3&'26!!' 69'/'6/+'#1(' +: +/#' 3'#$+' !+' 69' 6!#' ! '& ' ! 2 !

8@9' 7 "' 6/4>' .2*' /6&43' .2*(*' A&3'/(!>!4&;;5'4' 30-2' .2!4>' &3' &' 1!(*-.' *070;3!/4',(/6'.2*'-!.5' 0.'&' 6&4' 6!>2.' <*'-0.'/,',(/6',!(*' &41'A&.*('.2*' 356</;' /,'-!=!-'-/6604!/4'A2!-2'/,'-/0(3*' 7(&-F .!-&;;5',(-*1' 2!6'./';*&=*' .2*'-/04.(5' 2!3' " ? ' ' 1" ' A&3' /(!F >!4&;;5'!4,;!-.*1'<5'.2*' ' " ' &41';&.*('<5'.2*' 7*(6&4*4.'K01!-!&;'-/6F 6!33!/43' &77/!4.*1'./'.(5'-*(.&!4'3*(!/03' /,,*4-*3' &3' ,/(' !43.&4-*' .(*&3/4' &(3/4' &41' 7/!3/4!4>' 4' -&3*' /,' .2*' -&7!.&;' *2&(>*' .2*' &--03*1' A&3' &;A&53' ,(*' ./' &4.!-!7&.*' &4' 04,&=/0(&<;*' =*(1!-.' /(' .2*' " ' ' 1" '<5' A!.21(&A!4>

!4./' /;04.&(5'*0!;*' 2*' - '!4=/;=*1' .2*' ;*33*(' " ? !' /(' ;/33' /,' -!.!Q*432!7'!,'.2*' <&4!32*1' 7*(3/4'<*-&6*' -!.!Q*4' /,' &4/.2*(' 3.&.*' /(' !,' .2*' 7*/7;*' 1*-;&(*1' .2*' <&4!32,!!*4.'./' <*' 1*3*(=*1' /(' !,'.2*' " ' 1 ' ' 1" ' A&3' 7(/F 4/04-*1' &,.*(' 2*' 2&1' >/4*' !4./' *0!;*' ' .=&3' /4;5' !4' =*(5' 3*(!/03' -&3*3' .2&.' & 6&43' 7(/7*(.5' A&3' &;3/'-/4,!3-&.*1' *&; <&4!32 6*4.' A&3' ,!(3.' !4,;!-.*1' !6 1*(' .2*' 67!(*' &' /# '&41' 2 011;46' '7;&5' /,' &' ;!=*;5'-2&(&-.*(' &-.*1'/4'.2*' /6&4'3.&>*' &.' .2*' *41' /,' &' 3*(!/03'7!*-*' .'-/((*37/41*1'!4'-2&(&-.*(' ./' .2*' 3&.5(!-' 1(&6&' /,' .2*' (**D3' 2* 7;&-*' /,' .2*' - 'A&3'/(!>!4&;;5'.&D*4' <5'.2*' '&41') " 016!3' '

J<;43' !-.,!(' K -*

&<(!' 2*' 6*-2&4!-3'-&(7*4.*(3'36!.23' *.-' !4' .2*' /6&4' &(65' ,.*(' .2*' *41' /,' .2*' (*70<;!-&4' &>*' .2*5" ,/(6*1' &4' !41*7*41*4.'-/(73'!4' *=*(5'&(65' 41'A*(*' *67;/5*1' *37*-!&;;5' !4' .2*' (*3./(&./4' /,' <(!1>*3'3!*>*' &41'1*,*4-*' A/(D3'&(.!;;*(5' *.-' 2*5'A*(*' 041*(' .2*'-/66&41' /,' .2*' $ ' ('(' -2!*,' *4>!4**(' A2/' A&3'-2/3*4' <5' .2*' >*4*(&;' !4' -2!*,' &41' A&3'!66*1!&.*;5'(*37/43!<;*' ./' 2!6 &<,;;&' &; &.&' &41' 1>&.&' ' J6;;;&' 2*' &.!4' 4&6*' ,/(' &' 2/03*F 2/;1'-/6604!.5'-/43!3.!4>' /,' .2*' 6&3.*(' /,' .2*' 2/03*' & ' E ' 2!3' A!,*' W ' 2!3' 3/43' &41' 046&((!*1' 1&0>2.*(3' & ' &41' ' 1!* A!=*3' 3/43' &41' 046&((!*1' 1&0>2.*(3' /,' .2*' 3/43' &41' .2*' 3;&=*3' ;;' .2*' /.2*(' 6*6<*(3'/,'.2*',&6!;5'A*(*'30<K*-.'./'.2*' %&0.2/(!.5'/,'.2*' ' 8 /(' .2*' 7/A*(' /,' .2*' 203<&41' /5*(' 2!3' !,*' ') (' 4'=!(.0*' /,' 2!3'7&.*(4&;'&0.2/(!.5' & ' .2*' ' 2&1' &<3/;0.*' &0.2/(!.5' /=*(' 2!3'-2!;1(*4' *' 6!>2.'!,'2*' ;!D*1'*07/3*' .2*6'3*;;' .2*6' G/(' D!;;' .2*6' 2*3*' (!>2.3' &3' 6&44*(3' A*(*' >(&10&;;5' 3/,.*4*1' A*(*' 6/(*' &41' 6/(*' (&(*;5' *4,/(-*1" <0.' .2*5' ;*>&;;5' -&6*' ./' &4' *41' /4;5'A2*4'.2*',&.2*('1!*1' ;/3.'2!3'-!.!Q*432!7'/(',' 2!3'/A4'A!;;' ,(**1' 2!3'3/4',(/6' 2!3' &0.2/(!.5' & ' "3' ; 6 ' 2*5' -/0;1' 2/A*=*(' <*' .(&43F ,*((*1'./' &4/.2*(' 7*(3/4' !,' .2*' 3/4' A*(*' &1/7.*1' /(' .2*' 1&0>2.*(' 6&((!*1' '3/4' !,'/,',0;;4>*' A&3'4/.'!4' &45'A&5'!4.*(,*(*1' ' ' ' !4' .2*' *0*(-!3*

/,' 2!3' -!=!;' (!>2.3' 0.'!4'.2*' *0*(-!3*' /,' 2!3' ;*>&;' (!>2.3' &3' &4' !41!=!10&;' 2*' A&3' 1*7*41*4.'&;A&53'/4'2!3',&.2*(' *'-/0;1' ,/(' !43.&4-*' /A4' 4/' 7(/7*(.5'<0.'&;'.2&.' 2*' &-:0!(*1' A&3'!4' .2*' *5*' /,' .2*' ;&A'&.' .2*' *0-;03!=*' 1!37/3&;' /,' 2!3',&.2*(' 2* ' ' &;/4*' 2&1' .2*' (!>2.' /,' 6&D!4>' 1!37/3!.!/43' /,' .2*',&6!;5'7(/7*(.5' <5'6/(.>&>*' 3&;*' /(' .*3.&6*4. &6!;5' &6*3' ' &44;03' ' &(6*(3'/,' 4<;!-' &0*3' '2(& &41' . &6*3*' 0;;' ' 1 & &3 *3' 2*' &.!4'4&6*' ,/(' &'<041;*' /,' (/13'/,'*;6'/(' <!(-2'.!*1'./>*.2*(' <5'&'(*1' 3.(&7'&41'*4-;/3!4>'&4'&0*'A!.2'!.3'2*&1' /0.3!1*' 2*' A*(*' /(!>!4&;;5'.2*' *6<;*6'/,' .2*' D!4>3' &<3/;0.*' &0.2/(!.5' /=*(';!,*' &41';!6<'&41'&3 30-2'7&33*1'/=*(' ./' .2*' 2!>2' 6&>!3.(&.*3'/,' .2*' *70<;!-' !' .2*' -!.5'2/A*=*(' .2*' ;&..*(' 2&1' ./' (*F 6/=*' .2*' &0*' &41' ./';/A*(' .2*' (/13'!4' .2*' 7(*3*4-*' /,' .2*' 7/70;&(' &33*6<;5' &3' .2*' 3/=*(*!>4' 7/A*(' 2*' ;/A*(!4>' /,' ' A&3' &;3/' .2*' ,/(6' !4' A2!-2' .2*' ;/A*(',,!-!&;3'3&;0.*1'.2*'2!>2*(' 2*'D!4>' A&3' 7(*-*1*1' <5';!-./(3' <*&(!4>' .A*;=*' &41' 3/' A*(*' .2*' -/430;3' &41' 7(/" -/430;3' 2*' 7(/-/430;3' 2/A*=*(' A*(*' 3!4-*' .2*' .!6*' /,' 0>03.03' /4;5' &;;/A*1' .2!3' 406<*(' !,' .2*5' 2&1' &-.0&;;5' <**4'-/4F 30;3'7(*=!/015' 2*'1!-.&./(' 2&1' .A*4.5" ,/0(/&-,3'&3'(*7(*3*4.!4>'.2*'.A/'-/430;3' &41'2!3' 1 ' '2&1'3!0' !0'A&3' &;3/'.2*' 406<*(' & /..*1'./' .2*' 7(/-/430;3' &41'7(/7(&*./(3'/0.3!1*' .2*' -!.5'&41' !4' .2*

!6 7*(!&;' &>*' ./' .2/3*' 7(/-/430;3' A2/' 2&1' 7(/=!4-*3' !4' =!(.0*' /,' .2*!(' 2&=!4>' 2*;1' .2*' 7(3*./(32!7 ' 2*' 7(&*./(3' /,' .2*' -!.5' 2&1' .A/' .2*' !6 7*(!&;' ;*>&.*3' &1 6 !4!3.*(!4>' 7&(F .!-0;&(' 7(/=!4-*3' 2&1' ,!=*' ' 4*' A&3' &;;/..*1' ./' .2*' "' 5 $ ' &41' 8,(/ 6' /(' &,.*(' (' C@9' ./' .2*' *3.&;' !(>!43' A -(/A4*1' A!.2' <&5' A*(*' !4' .2*' (*70<;!-&4' &>*' .2*' " 1" ' /,' &4' /,,!-*(' A2/' A&3' 3&;0.*1' &3' ' 0(!4>' .2*' !6 7*(!&;' &>*' .2!3' .!.;*' A&3' -/4,*((*1' /4' .2*' * 6 7*(/(' &.' 2!3' &--*33!/4' &41' 3//4' -/4,!4*1' *OF -;03!=*;5' ./' 2!6 ' 2*' * 6 7*(/(' A&3' &--/(1F !4>;5 7(*-*1*1' <5' .A*;=*' ' 2*' ;!-./(3' 2*;1' .2*!(' ' /=*(' .2*' ;*,.' 32/0;1*(' 0.' &.' ,04*(&;3' .2*' ' /,' &' 1*-*&3*1' 6&>!3.(&.*' &41' 2!3' &(63' A*(*' -&((!*1' (*=*(3*1' <*2!41' .2*' <!*(&3-;406' 8 &.!49' 4-2&4.6*4.' <5' .2*' *=!;' *5*' A/(13' /(' -(!*3' *0*(-!3*1' /4' 7*(F 3/43' 8*37*-!&;;5' -2!;1(*49' &4!6&;3' &41' .2!4>3' &3' ,/(' !43.&4-*' /4' &' %7!*-*' /,' >(/041' 2*' A/(1' A&3' &;3/' &77;!*1' ./' .2*' -/04.*("-2&(6' <5' A2!-2' !.' A&3' 3077/3*1' .2&.' .2*' *4-2&4.6*4.' -/0;1' <*' &=*(.*1' /(' *=*4' .0(4*1' &>&!43.' .2*' *4-2&4.*(' 6 0;*.3' /,' =&(!/03' D!413' A*(*' * 6 7;/5*1' &3' -/04.*("-2&(63' 2*5' A*(*' 3077/3*1' *!.2*(' ./' 7(/-0(*' .2*' 7(/.*-.!/4' /,' &' 7&(F .!-0;&(' 1*!.5' /(' ./' 3*41' .2*' *4-2&4.*(' 6&1' <5' 6*&43' /,' .*((!<;*' (!1!-0;/03' /(' /<3-*4*' /<*-.3' 2*' 4&6*' " ' A&3' .203' 37*-!&;;5' &77;!*1' ./' .2*' (' A2!-2' A&3' .2*' ,&=/0(!.*' -/04.*("-2&(6' /,' .2*' /6&43' 4' !6&>*' /,' .2!3' " ' A&3' -/4.&!4*1' !4' .2*' (' A/(4' &3' &4' &60;*.' <5' -2!;1(*4' &41' A&3' &;3/' 70.' 041*(' .2*' -2&(!/.' /,' &' >*4*(&;' &.' 2!3' .(!0672' &3' &' 7(/.*-.!/4' &>&!43.' *4=5 &3.!# ' 8 /6&4 9' (/7*(;5' 37*&DF !4>' .2*' -/0("1&53' /4' A2!-2' .2*' 7(&*./(' A&3' &;;/A*1' ./' >!=*' 2!3' K01>6*4.3' !4' .2*' 3/;*64' ,/(60;&' 5 ' 5 ' ' &41' >*4*F (&;;5' ./' &-.' !4' 2!3' K01!-!&;' -&7&-!.5' 2*' 4&6*' A&3' ,0(.2*(' &77;!*1' ./' .2*' 1&53' /4' A2!-2' !.' A&3' ;&A,0;' ./' 3066/4' .2*' &33*6<;5' &41' .2*' 3*4&.*' # ' < M ' /(' .2*3*' 1&53' 6!>2.' <*' 03*1' &3' -/0(.' 1&53' !4' -&3*' .2*' &33*6<;5' 1!1' 4/.' 6 **.M A2!;*' /4' ' 7(/7*(' 4/' 6 **.!4>' /,' .2*' ' -/0;1' .&D*' 7;&-*' 2*' /77/3!.*' /,' ' A*(*' .2*' " ' /(' 1&53' /4' A2!-2' /4' &--/04.' /,' 70(!,!-&.!/43' 2/;!F 1&53' ' &41' /4' /.2*(' (*;!>!/03' >(/0413' .2*' -/0(.3' -/0;1' 4/.' 3!.' 4/(' .2*' " ' &33*6<;*' # ' $. ' 2*' ' 1 ' A*(*' &;3/' -/04.*1' &3' " ' # ' 2 ' 1 ' *3!1*3' .2*' R"CV' ' ' 7(/7*(' .2*' $RR"$TC' ' ' .2*' CR"VN' " ' &41' V "VT' ' 1 ' .2*(*' A*(*' R' ' " ' A2!-2' A*(*' " ' !4' .2*' 6/(4!4>' &41' *=*4!4>' <*-&03*' /,' -*(.&!4' 3&-(!,!-*3' A2!-2' ./!D' 7;&-*' .2*4' <0.' ' ,/(' .2*' (*6&!4!4>' 2/0(3' 2*(*' A*(*' &;3/' ' ' ' 837;!.' 1&539' A2!-2' A*(*' " ' 04.!;' .2*' -/4-;03!/4' /,' &' 7&(.!-0;&(' 7(/-**1F !4>' " 1' .2*' (*6/=&;' /,' .2*' 3A**7!4>3',(/6' .2*' .*67;*' /,' *3.&' /4' 04*' $V.2' <0.' ' &,.*(A&(13 2*' 1!=!3!/4' /,' 1&53' "!4./' ' &41' ' /(' 2/;!1&53' &41' A/(D1&53' /4;5' &,,*-.*1' 7(!=&.*' ;!,*' .2/0>2' 6&45' ' " ' &3' ' A/0;1' <*' !1*4.!-&;' A!.2 2*' ;!3.' /,' .2*' ' A&3' /,' !66*43*" !67/(.&4-*' &3' &,,*-.!4>' ;*>&;' 7(/-**1!4>3' &41' !41**1' &;;' 70<;!-' ;!,*' /(' &' ;/4>' .!6*' !.' A&3' !4' .2*' 2&413' /,' .2*' " ' &41' A&3' .203' /4;5' &--*33!<;*' ./' .2*' 7&.(!-!&43' <0.' &.' ;&3.' NC' &' 43*03' ;&=!03' 70<F ;!32*1' "!.' &41' 6&1*' !.' >*4*(&;;5' &--*33!<;*' 2!3' ;!3.' -&;;*1' 3!67;5' A ' A&3' .2*' /(!>!4' /,' .2*' /6&4' -&;*41&(' A2!-2' </(*' .2*' 3&6*' 4&6*' 4' .2!3' -&;*41&(' .2*' 1&53' /,' .2*' 5*&(' &(*' 1!=!1*1' !4./' A**D3' /,' *!>2.' 1&53' *&-2' !41!-&.*1' <5' .2*' ;*..*(3' [&-2' 1&5' 2&3' 6&(D3' !41!-&.!4>' !.3' 406<*(" !4' .2*' 6/4.2' !.3' ;*>&;' 3!>4!,!-&4-*' 8 ' ' D O" ' 6 Z ' ' " ' 2*' ,*3.!=&;3' 3&-(!,!-*3' &41' >&6*3' /--0((!4>' /4'!.' &(*' &;3/' &11*1' &3' A*;;' &3' 4/.!-*3' /,' 2!3./(!-&;' /--0((*4-*3' .2*" (!3!4>' &41' 3*..!4>' /,' .2*' 3.&(3' &41' /.2*(' 6&..*(3' /'.(&-*' (*6&!43' /,'&45'-&;*41&(' 7(*=!/03' ./' &*3&(" <0.' 3*=*(&;' -&;*41&(3' -/67/3*1' &,.*(' &*3&(3' (*,/(6' 2&=*' <**4' 7(*3*(=*1' N"=!1 3' A ' !3' &' 7/*.!-&;' *OF 7;&4&.!/4' /,' .2*' /6&4' ,*3.!=&;3' /,' .2*' ,!(3.3!O' 6/4.23' *' 2&=*' &;3/' 6&45',(&>F 6*4.3' /,' -&;*41&(3' 7&!4.*1' /(' *4>(&=*1' /4' 3./4*' <*;/4>!4>' ./' /6*' &41' /.2*(' .&;!&4' -!.!*3" ,/(' !.' A&3' -/66/4' ./' 70.' 07' -&;*41&(3' /,' .2!3' D!41' !4' 70<;!-' 7;&-*3' .*67;*3' &41' 7(!=&.*' 2/03*3' 2*(*' &(*' .A/' -/67;*.*' -&;*41&(3' !4' *O!3.*4-*' /4*' &4' /,,!-!&;' ;!3.' A(!..*4' <5' 0(!03' !/453!03' 2;;,!- 03' !4' VC') (.2*' /.2*(' &' 2(!3F .!&4' =*(3!/4' /,' .2*' /,,!-!&;' -&;*41&(' 6&1*' <5' ?;*6;03' !;=!03' !4' CCR' 2*' A/(1' A ' A&3' ,0(.2*(' &77;!*1' ./' .2*' &440&;' ;!3.3' /,' .2*' .(!06723' 2!>2' /,,!-!&;3' -/430;3' 1!-.&./(3' -*43/(3' &41' 7(!*3.3' 2*3*' ;!3.3' A*(*' /(!>!4&;;5' ;!D*' .2*' /.2*(' ' 6&1*' /0.' <5' .2*' " ' /6*' ,(&>6*4.3' /,' .2*6' 2&=*' 30(=!=*1' &6/4>' A2!-2' 6&5' <*' 6*4.!/4*1' .2*' A ' B$ " ' 3/' -&;;*1' ,/(6' .2*' /6&4' &7!./;' A2*(*' .2*5' &(*' 4/A' 7(*3*(=*1

2*5 A*(* /(!>!4&;;5 !4 ?" N R *4F >(&=*1 /4 .2* 6&(<;* A&;; /, .2* . 1 /(' /,,!-!&; (*3!1*4-* /, .2* , " - - &41 &,.*(A&(13 -/4.!40*1 ,!(3. ./ $@ &41 &,.*(A&(13 #6 $ < #) 4 +$ &4 & 5 (1** %' ' # < 3 +! (&44& >)) &04&3 H 2* A*;;"A!32*(I 8,(/6 1=B-9 (/ + '$ / ! ' H #$ + / + =+ '' I 8,(/6 " % 4* /, .2* /;1*3. &41 6 /3. 7/70;&(' 1*!.!*3 A2/ A&3 !1*4.!,!*1 A!.2 .2* (**D &4 /4 &--/04./,.2* 3!6!;&(!.5 /, .2*!(' &..(!<0.*3 # $ &>//1 37!(!. /, .2* ,/(*3. 7;*143 &41 ,!*;13 2* >&=* ,(0!.,!!;4*33 ./ .2* -&..;* &41 A&3 2*4-* -&;;*1 '" 2 !.2 &;; .2!3 2* A&3&3/&>/1 /, 7(/72*-5 -&;;*1 <5 .2* 4&6* /, A * (*=*&;*1 .2* ,0.0(* !4 1(*&63 &41 3.(&4>* =/!-*3 -/6F 604!-&.*1 ./ 2!3 /.&(!*3 A2!;* 3;**7!4> !4 2!3 7(*-!4-.3 07/4 .2* ,!**-*3 /, 3&-(!,!-*1 ;&6<3 >/11*33 /, ;!D* &..(!<0.*3 -&;;*1 A " &41 A A&3 &33/-!&.*1 !4 2!3 A/(32!7 2* A&3 (*>&(1*1 3/6*.!6*3 &3 2!3 A!,* 3/6*.!6*3 &3 2!3 1&0>2.*(' 83*- / 1 03. &3 &4 A&3 &--/67&4!*1 <5 .2* A " (' ;!..;* &43 3/ .2* *0!3.*4-* /, 6&45 A " A&3 &3306*1 <*3!1*3 .2* -2!*, A " 2*5 A*(* !6&>!4*1 &3 6*((5 -&7(!-!/03 <*!4>3 &41 !4 7&(.!-0;&(' &3 6!3-2!*=/03 >/<;!43 A2/ -&03*1 4!>2."6&(*3 4 ,&<;* &0403 &77*&(3 &3 &4 /;1 D!4> /, &.2;6 3/4 /, !-03 &41 >(&413/4 /, &.06 03 ,&.2*(' /, KJ.;403 e .2* 4567 2 .;(;-& ,.*(' 2!3 1*&.2 2* !3 (&!3*1 ./ .2* 7/3!.!/4 /, &.0.*;&(5 1*!.5 /, .2* ;&41 ,/(' 2!3 6&45 3*(=!-*3 ./ (B(!-0;.0(* &41 -&..;*' <(**1!4> A/ ,*3.!=&;3 -&;;*1 A " A*(* -*;*<(&.*1 !4 2!3 2/4/0(' /4* /4 .2* $R.2 /, *<(0&(5 !4 .2* .*67;* /4 .2* !3;&41 !4 .2* !<*(' .2* /.2*(' /4 .2* V.2 /, *-*6<*(' 2* 7*&3&4.3 <(/0>2. 2!6 (03.!-/,,*(!4>3 &41 &603*1 .2*63*;=*3 A!.2 1&4-!4>

<$7&33!' 6 (;!-!.&3 2* 7*(3/4!,!-&.!/4 /, >//1 ,/(.04* &6/4>.2* /6&43 2* A&3 A/(F 32!77*1 !4 =&(!/.6 3&4-.0&(!*3 !4 /6** 2*(' &..(!<0.*3 <*!4> .2* -/(40-/7!& &41 .2* 2*(&;1 3.3&,, 1(&;;& 2* ;&3. 1&5 /, .2* /6&4 ,*3F .!=&; -&;;*1 .2* (*4.&;,& #) *(;6 8 &.!49 /;!1&53 1*1!-&.*1 ./ .2* A/(32!7 /, 3/6* 1*!.5 1!3.!4-.!/4 A&3 1(&A4 <*.A**4 6/ 7(,01,- /(' 2/;!F 1&53 /<3*(=*1 <5 1 ', &6!;!*3 &41 !4F 1!=!10&;3 &41 (/(' 70<;!- 2/;!1&53 0<;!- 2/;!1&53 A*(** *!.2*(' ,!0*1 /(' 6/=&<;** /(' /*-&3!/4& 2* ,!0*1 2/;!F 1&53 # 3 A*(* ,/(.5",!=* !4 406<*(' &41 A*(* -*;*<(&.*1 *=*(5 5*&(' /4 &1*,!4!.* 1&5 &41 (*>!3.*(*1 &--/(1!4>;5 !4 .2* -&;*41&(' 2* 6/=&<;** 2/;!1&53 # " A*(* &;3/ &440&;' <0.' A*(* 2*;1 /4 -2&4>!4> 1&53 &41 2&1 .2*(*,/(* ./ <* &44/04-*1 <*,/(*2&41 <5 .2* -/430;3 /(' !4 .2*!(' &<3*4-* <5 .2* 7(&*./(' 2* /--&3!/4&; 2/;!1&53 # A*(* -/66&41*1 /4 37*-!&; /--&3!/43 <5 .2* &0.2/(!.!*3 A!.2 .2* -/43*4.' /, .2* F 0-2 A*(* ,/(' !43.&4-* .2* " &3/;*64 3*(=!-* ./ .2* >/13 ./" -*;*<(&.* &=!-./(5 /(' .2* ;!D* 4* /, .2* 7(!4-!7&; 6/=&<;* ,*3.!=&;3 A&3 .2* A " ; " 2!3 A&3 /(!>!4&;;5 &-*;*<(&.!/4 <5 .2* &.!4 (&-* 2*;1 /4 .2* ;<&4 6/04F .&!4 !4 2/4/0(' /, 07!.*(' &.!&(!3 .' A&3 30<3*:0*4.;5 .(&43,/(6*1 <5 &(:0!4!43 07*(<03 !4./&,*3.!=&;, /, .2* &.!4 *&>0* .3 6/3.' 4/.&<;* -*(*6/45 -/43!3.*1 !4 .2* 3&-(!,!-* /, A2!.* <0;;3 &7/(.!/4 /, A2/3* ,;*32 A&3 1!3.(!<0.*1 ./ *&-2 /, .2* -!.!*3 /, .2*;*&>0* (*7(*3*4.*1&.2* 3&-(!,!-* &45 -!.5 X,!1 4/.(*-*!=* !.3 7/(.!/4 /('!,&45 /.2*(' 7/!4.!4 .2* -*(*6/4!&; A&3 /61..*1 .2* A2/;* 3&-(!,!-* 2&1 ./ <* (*7*&.*1 (!>!4&;;5 !.' ;&3.*1 /4* 1&5 <0.' &,.*(F A&(13 A&3 *0.*41*1 ./ ,/0(' .' A&3 .2*4 -*;*<(&.*1 !4 7&(.' /4 .2* ;<&4 2!;;' <5 .2* /6&4 -/430;3 !4 7(*3*4-* /, &;;' .2* 6&>!3.(&.*3 !4 7&(./4 .2* /6&4 &7!./;& (&-* <*!4>' !4-;01*1 !4 .2* 7*(,/(6&4-* .' A&3 &44/04-*1 <5 .2* -/430;3 !6 6*1!&.*;5 &,.*(' .2*!(' &33067.!/4 /, /,,!-* 4/(' 1!1 .2*5 ;*&=* /6* ,/(' .2*!(' 7(/=!4-*3 04.!;' .2*5 2&1 -*;*<(&.*1 !.' 2* 1&.* .2*(*,/(* 1*7*41*1 /4 .2&.' /, /,,!-* <5 .2* 2!>2*(' 6&>!3.(&.*3 Z(1 &' 4 /;1 .&;!&4 >/11*33 /, &<!4* /(!64 <0.&;3 60-2 A/(32!77*1 !4 .(.;(;&' 2* 3** 63 /(!>!4&;;5 ./ 2&=* <**4 (*>&(1*1 !4 .2* 3&6* ;!>2.' &3 ;/(&' !< (& &41 *403 2* (**D3 -&;;*1 2*(' &>/1F 1*33 /, ,;/A*(3 /4 -/!43 32* !3 (*7(*3*4.*1 &3 &>!(;' !4 .2* >/11*33 /, *6&4-!7&.!/4 ,(/6 3;&=*(5 2* 2&1 & =*(5 -*;*<(&.,*1 32(!4** &.' .2* ,/./ /, /04. (&-> !4 .(0(!& A2(* .2* A2/;* 4*!>2</0(2//1 03*1 ./ <(!4>2*(' (!-2 =/.!=* /,,*(!4>3 &41 .2* ,!(3.,(0!.3 /, .2* ,!*;1 2* &440&;' ,*3.!=&;3 3*(=*1 &3 &(&!(3 30-2 A&3 .2* -(/A1 /, 7*/7;* A2/ ,;/-D*1 ./ .2*6 2* 65.2!-&;D!4> (,!;03 /, (3*4*3.* A&3 (*>&(1*1 &3 2*('3/4 *

1*;!=*(*1' .2*' >*4*(&;' 07' 4&D*1' &41' <&41"' </041' ./' .2*' *4*65' 4' -&3*' /,' .2*' &;;!&4-*' <*!4>' -/4-;01*1' .2*' ' ' ./!/D' &' ,;!4.' 3./4*' A2!-2' A&3' 7(*3*(=*1' !4' .2*' .*67;*' /,' 07!.*(' (*.(;03' &41' 3;*A' &' 3A!4*' .2*(*A!.2' ,!(3.' (*&1!4>' /0.' .2*' .*(63' /,' .2*' &;;!&4-*' &41' .2*4' &77*&;!4>' ./' 07!.*(' !4' -&3*' .2*' /6&4' 7*/7;*' 6&;!-!/03;5' <(/D*' .2*' .(*&.5' ./' 36!.*' .2*6' &3' 2*' A/0;1' 36!.*' .2*' &4!6&;' *' .2*4' 3!>4*1' .2*' 1/-06*4.' A2!-2' </041' .2*' 1 M ' /,' ' ./' 3**' .2&.' .2*' .(*&.5' A&3' /<3*(=*1' .' A&3' &;3/' 030&;' ,/(' .2*' -!=!;' 6&>!3.(&.*' ./' 6&D*' /&.2' <5' 07!.*(' &(3' >41' SO!(!403' /4' &' 3-*7.(*' A2!-2' A&3' ;!D*A!3*' .&D*4' ,(/6' .2*' .*67;*' /,' 07!.*(' *(*.(!03' !4-*' .2*' *-/41' 04!-' &(' .2*(*' !3' <0.' ;!..;*' 6*4.!/4' /,' .2*' &-.!/4' /,' .2*' ' <0.' !.3' *0!3.*4-*' -&4' <*' .(&-*1' &3' ;&.*' &3' .2*' 6!11;*' /,' .2*' C.2' -*4.0(5'

<. &' 8 (**D' " ' ' -;&37' ,/(' ,&3.*4!4>' >&(6*4.3' (*3*6<;!4>' /0(' <(//-2*3

(! 0

8 (!=&41' 1*';&' U!4-*;;*+' 'L' 0 '7!' 'O;!+' Q;0! 9

/(' 3&,*.5"7!43' .' -/43!3.*1' /,' &' 2//7' &41' &' 4**1;*' 3/6*.!6*3' *;&3.!-' 3/6*.!6*3' ,!0*1' <5' &' K/!4.' ' ' A*(*' !4' .2*' 32&7*' /,' <0-D;*3' &. ' !:;03.(&.!/43 9

!1*3' 2*' /6&4' 7*(3/4!,!-&.!/4' /,' 2/4/0(' !4' D**7!4>' A/(1' /(' /&.2' 3' A ' , ' /(' /4/0(' /,' .2*' */7;*' .2!3' >/11*33' 2&1' &' .*67;*' /4' .2*' &7!./;' ,/041*1' <5' D!4>' 06&' ./' A2!-2' .2*' " ' /,' 07!.*(' &(3' &41' S0!(!403' (/1*' !4' &' -/=*(*1' -2&(!/.' /4' .2*' $3.' /,' -./<*(' .' .2*' 3&-(!,!-*' .2*5' 2&1' .2*!(' (!>2.' 2&413' A(&77*1' 07' ./' .2*' ,!4>*(3' A!.2' A2!.*' <&413' 2*' 6*&4!4>' /,' .2*' -/=*(*1' -2&(!/.' A&3' .2&.' 2/4/0(' -/0;1' 4/.' <*' ./' -&(*,0;;5' 7(/.*-.*1' /,' .2*' -/=*(*1' (!>2.' 2&41' .2&.' .2*' (!>2.' 2&41' .2*' 3*&.' /,' 2/4/0(' 32/0;1' <*' D*7.' 70(*' &41' 2/;5' 2*' >/11*33' A&3' (*7(*3*4.*1' A!.2' /0.3.(*.-2*1' (!>2.' 2&41' &41' &' A2!.*' =*!;' *(' &..(!<0.*3' A*(*' *&(3' /,' -/(4' &41' ,(0!.3' K/!4*1' 2&413' &41' &.0(.;*"1/=*

!(3' /1' /,' ' / 7 (' &41'

0!0 43

!(6;-03' 1.*603' # = ' 8$9' ' 2*&.2*4' A(!.*(' &' 4&.!=*' /,' !-!;5' </0.' VC' ' 2/' 70<;!32*1' !4' *!>2.' <//D3' &' A/(D' /4' &3.(/;/>5' # (' ; ' =''' ' A2!-2' 2*' 2&1' <*>04' 041*(' /43.&4.!4*' .' >!=*3' &' =!=!1' 7!-.0(*' /,' .2*' >(/33' 307*(F 3.!.!/4' /,' .2&.' &>*' A!.2' (*>&(1' ./' .2*' 307F 7/3*1' !4,;0*4-*' /,' .2*' 3.&(3' !4' 206&4' ,/(.04*3

8@9' 4/.2*(' A(!.*(' /,' .2*' 3&6*' .!6*' &41' /,' .2*' 3&6*' &>*' A&3' &' -/4=*(.' ./' 2(!3.!&F 4!.5' A2/' &</4.' CU' ' 70<;!32*1' &' A/(D' /4' .2*' *(((/(' /,' .2*' 2*&.2*4' (*;!>!/43' #5' 9' ,' " D ' 7 1 " ' !4' A2!-2' 2*' -&;;*1' /4' .2*' *67*(/(3' /43.&4.!43' &41' /43.&43' ./' *0.!(7&.*' .2*' ;&3.' (*6&!43' /,' 2*&.2*4!36

!3-43' 2*' *67*(/(3' 7(!=&.*' 70(3*' &3' 1!3.!4>0!32*1' ,(/6' .2*' 70<;!-' .(*&30(5' #& Q ' .'A&3' !43.!.0.*1'<5' 0>03.03' &41' A&3' 041*(' .2*' *0-;03!=*' -/4.(/;/,' .2*' *67*(/(' 2*' -2!*;' 3/0(-*3',(/6' A2!-2' !.' A&3' (*7;*4!32*1' A*(*' .2*' *4.!(*' (*=*40*3' /,' .2*' !67*(!&;' 7(/=!4-*3' .2*' 7(/10-*' /,' 04-;&!6*1' *3.&.*3' &41' /,' -/4,!3-&.!/43' 2*' 6&!4' !.*63' /,' ,!3-&;' *07*41!.0(*' A*(*' .2*' &(65' .2*' ,;**.' &41' A&(' 6&.*(!&;' .2*' 3&;&(!*3' /,' /,,!-!&;3' .2*' 7(/=!3!/4' /,' -/(4' ,/(' /6*' 7/3.&;' -/6604!-&.!/4' &41' .2*' 70<;!-' <0!;1!4>3' /(' .2*' /,,!-!&;3' A2/' &16!4!3.*(*1' .2*' ' ' ( )

;&<*;;46' ',&4' '"

;&6 4' 8,(/6' '!' /4*' A2/' <;/A3' /(' D!41;*3' .2*' 3&-(!,!-!&;' ,!(*9' ' 2*' 37*-!&;' 7(!*3.' /,' &' 37*-!&;' 1*!.5' &6/4>' .2*' /6&43' 2*(*' A*(*' $V' A " *' .2(**' 2!>2*(' /4*3' #A " ' ' /,' 7&.(!-!&4' (&4D' .2*3*' A*(*' .2*' "' 5 '8/,' 07!.*(9' ' # ' &(39' &41' T " ' 8/,' T " " ' 2*(*6&!4!4>' $@' B@ '

3" ' 7;*<*!&43' &41' &..&-2*1' ./' ;*33' !67/(.&4.' 1*!.!*3' &3' 0;-&403' ;/(&' /6/4&' &41' &(6*4.&' 2*!(' /,,!-*' A&3' ,/(';!,*' &41' .2*5' -/0;1' /4;5' <*' 1*7(!=*1' /,' !.' !4' -*(.&!4' *=*4.3' 2*' *6<;*6' /,' .2*!(' 1!>4!.5' A&3' &' A2!.*' -/4!-&;' 2&.' # - ' 6&1*' /0.' /,' .2*' 2!1*' /,' &' 3&-(!,!-*1' &4!6&;' &41' 2&=!4>' &4' /;!=*' <(&4-2' &41' A//;;*4' .2(*&1' &.' .2*' ./7' 2!3' (' " ' A*(*' /<;!>*1' ./' A*&(' &;A&53' /0.' /,' 1//(3' !41**1' .2*' A "' 5 ' 2&1' /(!>!4&;;5' ./' A*&(' !.' !41//(3' &3' A*;;' ' 2*5' A*(*' *0*67.*1' ,(/6' &;;' .2*' 10.!*3' /,' -!=!-' ;!,*' &41' *OF -;01*1' &.' .2*' 3&6*' .!6*' ,(/6' &;;' 7&(.!-!F 7&.!/4' !4' 7/;!.!-3' 4' -/0(3*' /,' .!6*' !.' !3' .(0*' .2*5' A*(*' &;;/A*1' ./' 2/;1' 0(<&4' /,,!-*3' <0.' *=*4' .2*4' .2*5' A*(*' ,/(<!11*4' ./' >/' /0.' /,' .&;5

2*' A "' 5 ' A&3' /(!>!4&;;5' 4/.

&;;/A*1 ./ 37*41 &4!>2 &A&5 ,(/6 /6*
!4 ;&.*(.!6*3 041*(.2* 67!(* .2*
/4.!,*0 -/0;1 &;;/A 2!6 ./ 3;**7 /0.
,/(.A/ 4!>2.3 !4 .2* 5*&(41**1 .2*
% " $ A2/3* 307*(!/(7/3!.!/4
&6/4> .2* ,;&6*43 -/4,*((*1 07/4 2!6
-*(.&!4 7(!=!;*>*3 &3 .2* / " $ .2*
" $ &3*&. !4 .2* 3*4&.* &41
.2* 3*(=!-*3 /, &;!-./(A&3 !4 7(/7/(.!/4
/<;!>*1 ./ 30<6!. ./ 6/(* (*3.(!-.!/43 .2&4
.2* (*3. * 2!3 A!,* .2*!(-2!;1(*4 &41
2!3 2/03* /4 .2* &;&.!4* A*(* 1*1!-&.*1
./ .2!3 >/1 * 603.<* </(4/,& 6&((!&>*
"-*;*<(&.*1<5" & $&41;!=* 2!63*;,
!4 !41!33/;0<;* 6&((!&>* 9 0
, 2!3 A!,* 1!*1 2* (*3!>4*1 2!3 /,,!-* 4 .2* 7*(,/(6&4-* /, 2!3 3&-(*1 ,04-.!/43 2* A&3 &33!3.*1<5 2!3 -2!;1(*4 &3 " # $ 9 " &) =*(5 1&5 A&3 ,/(2!6 U 2/;5 1&5 3/ .2&. 2* 4*=*(&77*&(*1 A!.2/0. .2* /, 2!3 /,,!-* .2* %-/4!-&;2&. .2* .2!-D A//;*4 " " A/=*4 <5 2!3 A!,* .2* 3&-(!,!-!&; D4!,* G&41 &(/1 ./ D**7 .2* 7*/7;* &A&5 ,(/6 2!6 * A&3 7(*-*1*1 <5 2!3 ;!-./(&41 <5 2*(&;13 A2/ -&;;*1 /4 .2* 7*/7;* ./ 3./7 .2*!(A/(D &3 .2* ,!&6*4 A&3 4/ 7*(6!..*1 ./ ;//D 07/4 &45 ;&</0(* A&3 4/ &;F ;/A*1 ./ -&3 *5*3 /4 &4 &(6*1 2/3. ./ 6/04. G/(*=*4 ./ ./0-2 &2/(3* ./ ./0-2 &-/(73* %/(>(&=* /(&>/ /(&1/> /((&A 6*&. %/(&45.2!4> 04-;*&4 * 603. 4/ 2&=* 4*&(2!6 /(<*2/;1 &45.2!4> !4 .2* 32&7* /, &-2&!4 /43*:0*4.;5 .2*(* 603. <* 4/ D4/.3 <0. /4;5 -;&373 /4 2!3 (&!6*4. .2* (!4> /4 2!3 ,!4>*(A&3 <(/D*4 &41 &45 /4* A2/ -&6* !4./ 2!3 2/03* A!.2 -2&!43 603. !43.&4.;5 <* ;//3*4*1 ,2* A*(* >0!;.5 7, G&45 -&(*;*334*33 !4 .2* 3&-(!,!-*3 /(!, 2!3 2&., *;;/,,*;/2!3 2*&1 2* 2&1 ./ (*3!>4 !3 A!,* .2* # " $ A&3 7(!*3.*33 /, 04/ 2* 2&1 !4 ;!D* 6&44*(./ &77*&(&;A&53 !4 2*(/, /,,!-* &;/4>* A//;;*4 /<* A!.2 2*(2&!(A/=*4 A!.2 &70(7;* ,!;;*. &41 &((&4>*1 !4 75(&6!1&;,/(6 2* 2*(2*&1 -/=*(*1 "A!.2 &=*!; &41 &D*(-2!*, &41 -&((5!4> &3&-(!,!-!&; D4!,* 4 -*(.&!4 1&53 32* A&3 ,/(<!11*4 ./ -/6<2*(2&!(2* -2!*,<03!4*33 /, 2* ,;&6*43 -/43!3.*1 !4 1&!;5 3&-(!,!-*3 /4 -*(.&!4 37*-!&; /--&F 3!/43 .2*5 &-.*1 A!.2 .2* /4.!,!-*3 &41 .2* *3.&; !(>!43 2* .2(** 307*(!/(",;&6*43 /,,*(*1 &3&-(!,!-* ./ A '! "/4 .2* &7!./; /4 .2* $3. -./<*(1(!=!4> .2*(* !4 &.A/"2/(3* -2&(!/. 0(!4> .2* !67*(!&; 7*(!/1 # /, .2* 1*!,!*1 %*67*(/(3 A*(* &11*1 ./ .2* /.2*(3 ,;&6;4;-& > & ;&=;&446 43 3)

KK!**. $ F = &41 "

;/(& >/11*33 /(!>!4&;;5 B<!4* /, .2* 37(!4> &41 /, ,;/A*(3 &41 <;/33/63 !4 >*4*(&; ./ A2/6 7(&5*(3 A*(* /,,*(*1 ,/(.2* 7(/37*(!4> /, ,.2* (!7* ,(0!.3 /, ,!*;1 &41 .(** 2* A&3 &;3/ (*>&(1*1 &3 & >/11*33 /, ,.2* ,;/A*(/, 5/0.2 &41 !.3 7;*&30(*3 *(A/(32!7 A&3 3&!1 ./ 2&=* <**4 !4.(/F 10-*1 !4./ /6*<5 .2* &<!4* D!4> !.03 &.!03 &41 2*(37*-!&; 7(!*3. .2* A < " A ./ 2&=* <**4 &77/!4.*1 <5 06& * .*67;* A&3 *(*-.*1 ./ 2*(!4 .2* $ - !4 @ R 5 .2* 3&6* .!6* & .2*&.(!-&; ,*3.!=&; .2* A A&3 !4F 3.!.0.*1 &. .2* <*2*3. /, .2* !<5;!4* </D3 .2!3 ,*&3. .2* 6*4 1*-D*1 .2*63*;=*3 &41 .2*!(&4!6&3 A!.2 ,;/A*(3 *37*-!&;;5 (/3*3 .2* A/6*4 70. &3!1* .2*!(030&; -/3.06* &41 A/(* .2* >&5 1(*33*3 030&;;5 ,/(<!11*4 2* 3-*4* A&3 /4* /, 04(*F 3.(&!4*1 6*((!6*4. (/6 $U ' 5 .2* ,*3.!=&; A&3 &3.&41!4> /4* &41 ;&3.*1 3!0 1&53 ,(/6 7(!; @R .2* &44!=*(3&(5 /, .2* ,/041&.!/4 /, .2* .*67;* /, &5 /(.2* ,!(3. ,!=* 1&53 /, .2* >&6*3 /(.2* 307*(F !4.*41*4-* /, A2!-2 .2* -0(;* 3*1!;*3 A*(* (*37/43!<;* .2*(* A*(* .2*&.(!-&; 7*(,/(F 6&4-*3 ;&(>*;5 -/43!3.!4> /, .2* *(5 !41*" -*4. ,&(-*3 -& *1 6!6*3 4 .2* ;&3. 1&5 >/&.3 2&(*3 &41 /.2*(&4!6&;3 A*(* 204.*1 !4 .2* -!(-03 2* 7*/7;* A*(* (*>&;*1 10(!4> .2* >&6*3 A!.2 7/((!1>* 7*&3 &41 ;*4.!;3

;/(& A&3 !4 ;&.*(.!6*3 !1*4.!,!*1 A!.2 .2* (**D 2;/(;3 & / 9 4 A/(D3 /, &(. 32* A&3 (*7(*3*4.*1 &3 &<;//6!4> 6&!1*4 1*-D*1 A!.2 ,;/A*(3

;/(&3 & 8$9 /6&4 2!3./(!&4 /, .2* .!6* /, &1(K&4 $$U"$ R 4 / A(/.* !4.A/ </D3 & 2!3./(5 /, .2* A&(3 /, /6* ,(/6 .2* .!6* /, .2* D!4>3 /.2* -;/F !4>/, .2* .*67;* /, &403 041*(0>03.03 8@V 9 4 .2* .!.;* &3 A* 2&=* !.; .2* </D!3 -&;;*1 &4 *0-(7 ,(/6 !=5 &9 + ; " " A$$ 0 .2!3 !3 4/ .&4 &1*:0&.*1*3-(!7F .!/4 /, !. ;/(&3 !.!3 .(0* 2&3 03*1 !=5 & >! *& 1*&; .2/0>2 4/ .* 0-;03!=*;5 &41 .2* A/(D!3 (*&;;5 & 7&4*>5(!-/4 .2* >(*&.F 4*33 /, /6* .!3 .2* 7(/10-.!/4 /, & (2*./(!-!&4 &3 !3 32/A4 <5 .2* .&3.*;*33 &41 !4,;&.*1 ;&4>0&>* A!.2 !.3 7/*.!-&; *-2/*3 /, *(>!; &41 /(&-* &41 !.3 .*41*4-5 ./ *0&>>*(&.!/4 06*(/03 >(33 *((/(3 .*3F .!,5 ./ .2* !430,,!-!*4-5 /, .2* A(!.*(3 D4/A;*1>* /(.2;*33 &3 !.!3 .2* </D A&3 60-2 (*&1 &41 :0/.*1 !4 .2* !11;*

8@9 / 6&4 7/*. 2/ A&3 /4 ,&6!;!&(.*(63 A!.2 &1(!&4 &41 A2/ 2&3 ;*,. &* ,*A 7!*-*3 *!37(/<&<;5 ./ <* !1*4.!,!*1 A!.2 .2* ,(!-&4 (2*./(!-!&4 &41 7/*. 4<;;03 44.03 ;/63 .2* &0.2/(/, &* 1!&;/>0* A2!-2 3.!;;30(=!=*3 /2 .2* :0*3F .!/4 A2*.2*(*(>!;!3&4 /(&./(/(&7!7*. ;0.* 8 ,* 7!7*. &. 32!4"</4*9 2!3 A&3 6 &4.!:.!!.5 &4 !4"

8$9 &(/ 9& K & +.&!;7!*-*9

3.(06*4.((*3*6<;!4>.2* 6/1*(4 -;&(!/4*. 6&1* /,((**1 </0 <&5 !=/(5 /(</4* .3 !4=*4.!/4 A&3 &3-(!<*1 ./ .2*43 # 0 2* A!41 A&3 !4.(/10-*1 <5 & 6/0.27!*-* A!.2 /4* /(.A/ ./4>0*3 70. /4 &. *=*(57*(,/(6&4-* 4 &11!.!/4 ./ .2* 2/;*3 &. .2* 6/0.2 !./,.*4 2&1 2/;*3 &. .2* 3!1*3 7(/=!1*1 A!.2 3./73 *3!1*3 .2* 3!4B* ,;0.* &1/0<;* ,;0.* A&3 3/6*.!6*3 03*1 *37*-!&;;5 &. .2*&.(!-&(7*(,/(6&4-*3 ,04*(&;3 3&-(!,!-*3 &41 ,*3.&;7(//*3 !/43 2!3 -/43!3.*1 /, .A/ ,;0.*3 7;&5*1 &. .2* 3&6* .!6* <5 6*&43 /, *!.2*(/4* /(/, .A/ 3*7&(&.* 6/0!;!* 7!*-*3 2* .A/ ,;0.*3 ./>*.2*(2&1 &3 6&45 4/.*3 &3 .2* : "-# $ # 2* (!>2. 2&41 7;&5*1 .2* <&33 ,;0.* & - .2* ;*,. 2&41 .2* .(*<;* # " 2* .A/ ,;0.*3 A*(* *!.2*(/, *:0&; ;*4>.2 &41 3!6!;&(,/(6 *(04*:0&; ;*4>.2 ,!41 3!6!;&(,/(6 /(04*:0&; ;*4>.2 &41 1!33!6!;&(,/(6 4 .2* 2(5>!&4 1/0<;* ,;0.* /4* 7!7* A&3 3.(&!>2. .2* /.2*(;&(>*(&41 <*4. &. .2* *41 ;!2* &2/(4 83** !> $9 .3 !3 &7*-0;!&(!.5 /, (**D &41 /6&4 ,;0.*3 .2&..2*5 A*(* 3/6*.!6*37(/=!1*1 A!,2 &-2*-D"<&41 -/=*(!4> .2* 6/0.2 !.3 /7*4!4> ,!..*1 A!.2 6*.&, 2(/0>2 .2!3 /7*4!4> A*(* ,!0*1 .2* 6/0.27!*-*3 / , .2* 1/0<;* ,;0.* 8,!> @9 2* ;/4> 7!7* 3 &;3/ &4 !4=*4.!/4 /, .2* &4-!*4.3

/43 /(/4.03 2* /6&4 >/1 /, 37(!4>3 3/4 /, &403 &41 0.0(4& A2/ 2&1 &4 &;.&(!4 /6* /4 .2* &4!-.!;06 37*-!&; ,*3.!=&; .2* A " " A-3 2*;1 !4 2!3 2/4/0(/4 .2* $ .2 -./<*(&.A2!-2 >&(;&413 A*(* .2(/A4 !4./ .2* 37(!4>3 &41 ;&!1 (/041 .2* A*;;3

//;3 *&3./E (% /(1!-;1;&/(/(- 1;& ,*3.!=&;-*;* <.&.*1!4 /6*!4 2/4/0(/,'" *;;.;3>/11*33 /, .2* *&(.2 /4 $V.2 7(!; # /6& (;;& /6&4 ,*3.!=&; 2*;1 !4 *<(0&(5 !4 2/4/0(/, /(4&0 .2* >/11*33 /, /=*43 .A&3 3&!1 ./ 2&=*<**4 ,/041*1 <5 06& &41 6&5<* 1*3-(!<*1 &3 &.2&4D3F >!=!4> ,/(.2* *&(;!*3. *4K/56*4. /, .2* 4*A;5 >&.2*(*1 -/6 .A&3 2*;1 !4 .2* /(06 <5 .2* 0(!&* /(&4-!*4. 04!/43 /, D!436*4 041*(.2* 307*(!4.*41*4-* /, .2* $ - /(7(*3!1*4./, .2* 6&3.*(3 /, .2* 8D9(4 A&3<&D*1 !4 /=*43 !4 .2* &4-!*4. ,&32!/4 ;; A2/ 6!33*1 .2* ,*3.!=&; A*(* -&;;*1 ,//;3 # &3 <*!4> 3077/3*1 4/. ./ D4/A A2!-2 A&3 .2*!(&41 2&1 ./ 6&D* &4 /,,*(!4>&. .2* 3/"-&;;*1 *&3. /, //;3 # S /4 .2* $U.2 *<(0&(5 .2* 1&5 /, .2* T! "

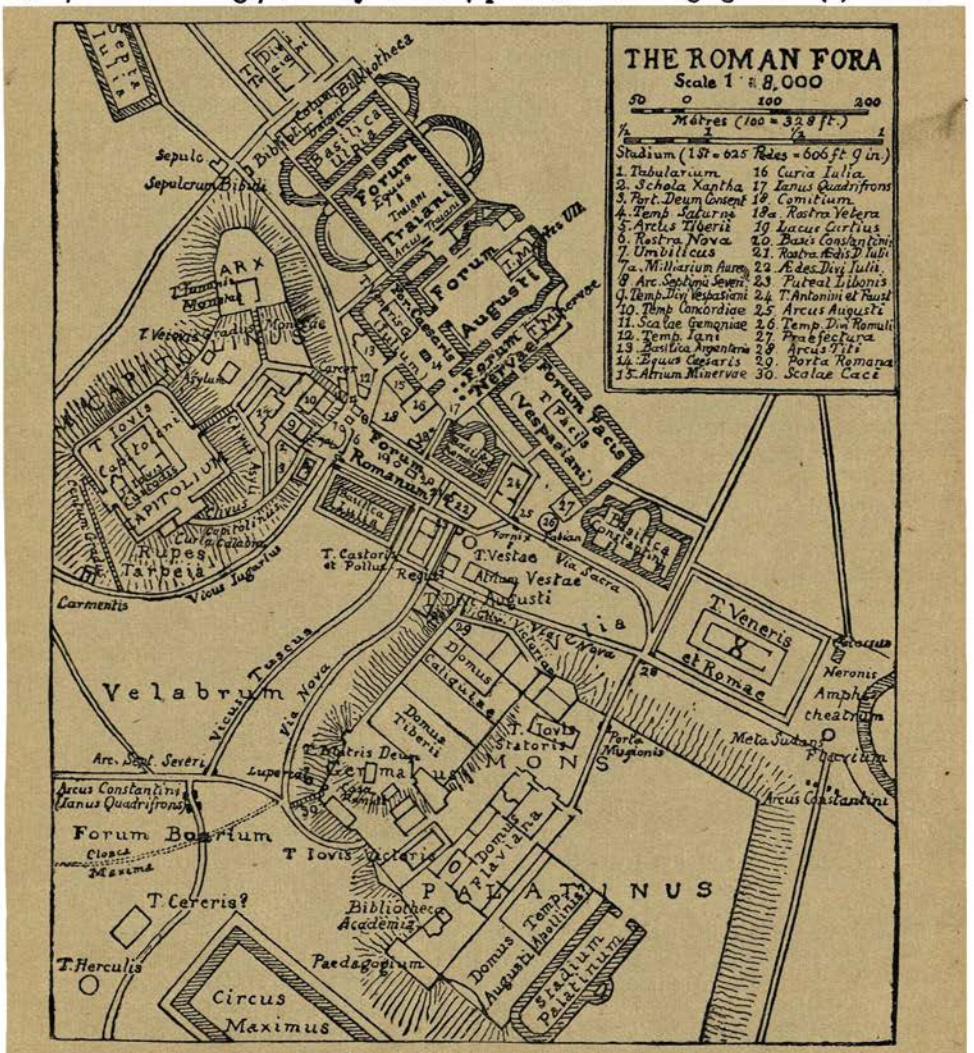
/(.44& 2*>/11*33 /,'>//1';0-D A/(F

.I U %& . &(+ ((/4Q*B,(/6 /1/4&8 &. 7!'$N9

32!77*1 ,(/6 (*6/.* &4.!:0!.5 !4 .&;5 *(A/(32!7 &3 3077/3*1 ./ 2&=* <**4 !4.(/10-*1 !4./ /6* <5 D!4> *(=!03 0;;!03'7/70;&(;5K<*;!*=*1 ./<*2*(,&=/0(!.* &41 -/4 &4. * A&3 3&!1 ./ 2&=*,/041*1 2*(/;1*3. 3&4-.0&(!*3 &3 ,/(!43.&4-* .2&. /, A A " /(;0-D5 -2&4-* /4 .2*

(!>2.' <&4D' / ,' .2*' !<*(' <*;/A' /6*' /' .2!3' &'7!;>(!6&>*' A&3' 6&1*' 1/A4' .2*' 3.(*&6' <5' ;&41' &41' A&.*(' /4' .2*' &44!=*(3&(5' /,' !.3' ,/041&.!/4' 8 04*' @?9' 3' .!6*' A*4.' /4' .2*' A/(32!7' /,' /(.04*' <*-&6*' /4*' /,' .2*' 6/3.' 7/70;&(' !4' .&;5' 2*' A&3' A/(32!77*1' &.' &' >(*&.' 406<*(' /,' 32(!4*3' 041*(' =&(!/03' .!.;*3' >!=*4' &--/(1!4>' ./' =&(!/03' -!(-06F 3.&4-*3' /,' ;!,*' !4' A2!-2' 2*(' !4,;0*4-*' A&3' 3077/3*1' ./' 2&=*' *,,*-.' 2*3*' .!.;*3' A*(*' GA " ' , Q 1 " ' A2/' 1*.*(6!4*3' .2*' 1*3.!45' /,' .2*' -2!;1' &.' !.3' <!(.2* A " ' , ' /(' , ' 7 " ' .2*' .0.*;&(5' >/11*33' /,' .2*' 3.&.** A " ' $ ' /(' 1 ' .2*' 7(/.*-.(*33' /,' .2*' *67*(/(" A " ' ' /(' /,' ,&6!;5';!,** A " ' ' ' ' /,' .2*' 1!,,*(*4.' /(1*(3' -;&33*3' &41' ,&6!;!*3' /,' .2*' 7/70;&F .!/4" A " ') ' /,' -2!;1(*4" F 1 " ' /,' 6&!1*43' (' /,' A/6*4" A " ' ' A&3' .2*'>/11*33' /,' A/6&4 3' 2&77!4*33' !4' 6&((!*1' ;!,** ' /,' </53' &41' /,' 5/0.23' A2/' 1*1!-&.*1' ./' 2*(' .2*' ,!(3.' -0.F .!4>3' /,' .2*!(' <*&(13' -&;;!4>' 2*(',(/6' .2!3' A " ' ' .2*(' *7!.2*.3' /,' A " ' A*(*' -' /(' >!=*(' /,' =!-./(5" -' /(' G ' .2*' ;*&1*(' /(' &..*41&4." -' A2/' <(!4>3' 3&,*' 2/6 *" " ' .2*' >!=*(' /,' 7(/37*(/03' =/5&>*3' 2!3' A " ' A&3' A/(32!77*1' A!.2' , " ' !4' .2*' 2&(</0(' /,' /6*' 2*(*' A*(*' &;3/' A " ' " ' &41' ' >//1' &41' *=!;' /(.04*" (" ' /(' ,;&..*(!4>' " ' /(' 5!*;1!4>' ! ' /(' 1/0<.,0;' < ' /(' *4.!-!4>' 3' /(' ,!-D;*' &41' " " ' /(' -/43.&4.' (&K&4' &.' ;&3.' ,/041*1' &' 37*-!&;' .*67;*' !4' 2*(' 2/4/0(' &3' .2*' &;;"7*(=&1!4>' 7/A*(' /,' .2*' A/(;1' *(*' &4' &440&;' 3&-(!,!-*' A&3' /,,*(*1' ./' 2*(' /4' *A' *&(3' &5' 4' A/(D3' /,' &(.' 32*' A&3' (*7(*3*4.*1' A!.2' .2*' 3&6*' &..(!F <0.*3' &3' .2*' (**D' +! ' &' # (' ' /(" " ' !4' 2*(' >*4*(&;' -2&(&-.*(' &3' &' >/11*33' /,' &.0(*' &41' &.*' 2&1' &4' &4-!*4. ' ' ' &41' ?;-<(&.?1' &A ' " L'-/!4' /,' " ' B%' 1 ,(/6'N*(2&(C' " ' @ .*67;*' !4' A6-4' .&!5 'C9 /(&-;*3' A*(*' 1*F ;!=*(*1' &.' (&*4*3.' &41' 4.!06' &' -0.9 166' 8 &.!49' 4' /7*4' 37&-*' 03*1' ,/(' 7/;!.!-&;' 6**.!4>3'K01!-!&;' 7(/-**1!4>3'&41' .(&,,!-' 4' /6*' .2*' /;1*3.',/(06' A&3' .2*' A ' 7 " ' &,.*(A&(13' .2*' &67/ &--!4*' &' ;/4>' &41' !((*>0;&(' ,/0("3!1*1' 37&-*' ;5!4>' <*.A**4' .2*' &7!./;' &41' .2*' &;&.!4*' !4' .2*' 1!(*-.!/4' /,' ' &41' '83**7;&4'7' @C$9' 4'.2*' -/0(3*' /,' .!6*' !.' A&3' 30((/041*1' A!.2' .*67;*3' 70<;!-' <0!;1!4>3' &41' <&3!;!-&3' .' A&3' /(!>!4&;;5' 03*1' &3' &' 6&(D*.' 7;&-*' <0.' A&3' *&(;5' 6/4/7/;!3*1' ,/(' 70<;!-' 70(7/3*3' 2B(*' A*(*' 2/A*=*(' 32/73' &41' 3.&;;3' &;/4>' .2*' 4/(.2*(4' &41' 3/0.2*(4' 3!1*3' A2*(*' &4' &-.!=*' .(&1*' A&3' -&((!*1' /4' *(*' !4' 7&(.!-0;&(' .2*' 6/4*5"-2&4>*(3' -&((!*1' /4' .2*!(' <03!4*33' 2*' A ' A&3' 1!=!1*1' !4./' .2*' $ ' A!.2' .2*' , ' /(' 37*&D!4>' 7;&.,/(6' &41' .2*' A ' 7(/7*(' A2*(*' A!*' /6&43' 2&<!.0&;;5' 37*4.' 60-2' /,' .2*4" 6/(4!4>' .(&43&-.!4>' 7(!=&.*' /(' 70<;!-' <03!4*33' & ' " & &' &41' /3'" g 41*(' .2*' 67!(*' &' 406<*(' /,' /.2*(' ' 37(&4>' 07' !4' !.3' 4*!>2</.;(2//1' A2!-2' A*(*' 03*1' ,/(';*>&;' &41' /.2*(' <03!F 4*33' 2*5' A*(*' &1/(4*1' A!.2'>(*&.' 6&>4!F ,!-*4-*' 2&=!4>' &' .*67;*' !4' .2*!(' 6!13.' &41' -/;/44&1*3' (/041' .2*6' A2!-2' A*(*' /7*4' ,/(' /(1!4&(5'.(&,,!-' 2*(*' A*(*' .203' A ' /,' &*3&(' 0>03.03' *37&3!&4' *(=&' &41' (&K&4' .2*' ;&3.' .2*' ;&(>*3.' &41' 6/3.' 37;*4F 1!1' /,' &;;' & ' 7;&4' 7' @C$9' ' 2*(*' A*(*' <*3!1*3' 3*=*(&;' ,/(&' ,/(' 6&(D*.' <03!4*33' &3' .2*' /(06' ' /(' -&..;*" 6&(D*. 7!3") ' /(',!32"6&(D*.' ' /(' =*>*F .&<;*" 6&(D*.' &41' 3/' /4' 2*' A/(1' ' A&3' &;3/' &77;!*1' ./' &45' 7;&-*' A2!-2',/(6*1' .2*';/-&;' -*4.(*' /,' -/66*(-*' &41' K0(!31!-F .!/4' M' 3/' .2&.' 30-2' ;/-&;' 4&6*3' &3' A ' 84/A' (*K039' A*(*' =*(5'-/66/4 (**16*4' 2*' *6&4-!7&.!/4' /,' 3;&=*3' A&3' ./;*(&<;5'-/66/4' </.2'&6/4>' (**D3' &41' /6&43' 2*' (**D3' 2&1' 4/' 37*-!&;' ;*>&;',/(6',/(' .2*' 7(/-*33' &41' -/43*:0*4.;5' 4/';*>&;' 1!,,*(*4-*3' !4' .2*' ' /,',(**1" 6*4' .' .2*43' .2*5' .//D' .2*' 7/3!.!/4' /,' (*3!1*4.' &;!*43' &41' ;&5' 041*(' -*(.&!4' /<;!>&.!/43' ./' .2*!(' ;!<*(&./(3' &3' 7&.(/43' 2*5' -/0;1' <*' -&;;*1' ./' ;*>&;' &--/04.' ,/(' &45' !4K0(5' 1/4*' ./' .2*!(' 7&.(/43' &41' !,' -/41*64*1' -/0;1'<*' >!=*4'<&-D' ./' .2*6' &3' 3;&=*3' /(' 3 ;1'<5' .2*' 3.&.*' 4' 2*' ;&..*(' -&3*' .2*' 7(!-*' A&3' 7&!1' ./' .2*!(' ;!<*(&./(3 6/4>' .2*' /6&43' *6&4-!7&.!/4' & " 6,33,19' A&3' &;0-(&.!=*' 7(/-**1!4>',/(' .2*' .&.*' &3' &.O' /,' V' 7*(' -*4.' /4' .2*' =&;0*' /,' .2*' 3;&=*' A&3' 7&!1' /4' 2!3' <*!4>' 3*.',(**' 6&4-!7&.!/4' A&3' *!.2*(' ,/(6&;' /(' !4,/(F 6&;' 8$9' ' ,/(6&;' *6&4-!7&.!/4' .2*(*' A*(*' .2(**D!413M' & ' .2*' " '2 ' !4' A2!-2' .2*' /A4*(' &77*&(*1' A!.2' .2*' 3;&=*' <*,/(*' &4' /,,!-!&;' A!.2' K01!-!&;' &0.2/(!.5' A2/' !4';&.*(' .!6*3' A/0;1' >*4*("

rally be the prætor or governor of the province. A Roman citizen, usually one of the magistrates' lictors, laid a staff (*vindicta*) on the slave's head and declared him free. The master, who was holding the slave with his hand, thereupon signified his consent, and let him go, as a symbol of will. Here the master declared his slave free in his will, or bound his heir to emancipate him. The heir might adopt the formal or informal process. Constantine added a new form, the *manumissio in ecclēsiā*, or emancipation in the church in presence of the congregation. (2) Informal



* PLAN OF THE ROMAN FORA.

(From Droysen's *Historischer Handatlas*, 1886, p. 11, with slight alterations.)

liberation (*mānū mīssĭt*). This formality was in later times restricted to the simple declaration of the master in the presence of the magistrate. (*b*) The *manumissio censu*, in which the master enrolled the slave's name in the list of citizens. (*c*) The *manumissio testāmentō*, or manumission by emancipation took place in virtue of an oral declaration on the part of the master, in presence of friends (*inter āmīcōs*), or by letter (*pĕr epistŭlam*), or by inviting the slaves to the master's table.

The freedmen were called *lībertī* in relation to the liberator (e.g. *libertus Cæsăris*)

30<3.&4-*3 A2!-2 3*7&(&.*1 .2*, ,&. ,(/6 .2*6 &30(!4*4!.(* &41,0;;*(3*&(.2 , .2*/<K*-.A&3./,*;.2*A*<&41 6&D*!. .2!-D*(&41 3.(/4>*(.2*3&6*7(/-*33A&3 >/4*.2(/0>2&41.2*-;/.2A&3.2*4<*&.*4 A!.2(/13A&32*1 /0.!4-;*&4A&.*(1(!*1 -&(1*1A!.2&D!41 /,.2!3.;* /(A!.2.2* 3D!4/,&2*1>*2/>,06!>&.*1A!.2 30;720((0<<*1!4 A!.2,0;;*(3*&(.2./ 6&D*!. A2!.*(&41 3.(/4>*(&41,!4&;;5 1(*33*1 <5<(032!4>32*&(!4>&41 7(*33!4> 2* ,0;;*(3*&(.2A2*4A*;;(0<<*1!4 7(*F =*4.*1.2*-;/.2*3,(/6>*..!4> 1!(.5./ 3//4&41,(*32*4*1 07.2*-/;/0(3A2!-2

.2*30;720(2&1 1*3.(/5*1 /6*,(*3-/*3 7(*3*(=*1/4.2*A&;;3/,&4&4-!*4.,0;;*(3 32/7&. /67*!!>!=*&-;*&(4./!/4/,.2* 1!,,*(*4.7(/-*33*3 2* "&. /6* ,/(6*1/4*/,.2*/;1*3.>,0!;13 !D*&;; 6*-2&4!-3.2*5 A/(32!77*1 ,43(=& &3 .2*!(.0.*;&(5>/11*33&41./!D&7(/6!4*4. 7&(.!4 2*(-2!*,*3.!=&;.2* T " 041;./(*3# " &3;!4>9 2* ;!>2.F &(6*1 3 4>*(3!4.2* /6&4&(65 2*5 A*(* 030&;;5(&!3*1<5(*-(0!.!4>/(-/4F .(!<0.*1<5.2*&;;!*3 ,!(!& * &3.,<J;43 0^/3

?&&8 (6 /(6 2* (**D >/1F 1*33/,.2* &(.2 --/(1!4>./* *3!/1 32* -&6* !4./<*!4>&,.*(2&/3 &41 <(/0>2. ,/(.2/,2*(3*;,.2*3D5# Q " .2* 6/04 .&!43 &41 .2* 3*& #, " 5 (403 32* A&3 6/.2*(/,.2* !.&43 $: &41 " ((/6 .2* <;//1 /, 2*(60.!;&.*1 203<&41 37(&4> .2* (!45*3 !&4.3 &41 *;!&4 456723 ./ /4.03 32* </(* *(*03 2&06&3 2/(-B3 *./ &41 0(5<;& .2*(.*((!<;* <*!4>3 30-2 &3 .2*>!&4.3 572/4 4.&*03&41 !.503 A*(* 2*(/,,37(!4> &3 &;3/.2* ((" 8&<F /(!>!4*39 30-2 &3 (*-2.2*03 &41 *-(/73 4 /6*(32* !3 !4=/D*1 A!.2 L*03 .2* 04 *&=*4 &41 *;;'&3 & A!.4*33 ./ /&.23 &41 A/(32!77*1 A!.2.2* 3&-(!,!-* /,&<;&<D ;&6<0.32* A&3 *37*-!&;;5 2/4/0(*1 &3 .2* 6/.2*(/,&;;A2/ 4/0(!32*3 2*(-(*&F .0(*3 &41 7/0(3 (!-2 <;*33!4>3 07/4 .2*6 4 .2*43 !4 7&(.!-0;&('32* A&3 A/(32!77*1 &3 (/(.2* 4/0(!32*(/,-6;'* 1(*4 &41 &.2* 3&6* .!6* &3 .2* >/11*33/,1*&.2 A2/ 306 6/43 &;; 2*(-(*&.0(*3 <&-D ./2*(&41 2!1*3 .2*6 !4 2*(</3/6 2* A&3 2/4/0(*1 &;3/ &3 .2* 7(!6*=&;7(/F 72*.*33 *37*-!&;;5 !4 *;72! .2* /(&-;* /, A2!-2 A&3 &.,!(3.!4 2*(7/33*33!/4 &3 .2* 7/A*(A2/ 3*4./,(.2 .2* =&7/0(3 A2!-2 !4F 37!(*1.2* 3**(2* -/((*37/41!4> /6&4 >/11*33 A&3 + #)

8 &!03 4* /,.2* 6/3. &--/67;!32*1 7(/,*33/(3/, /6&4;&A&41 A(!.*(3/4.21 30<K*-. * A&3 & 4&.!=* /,.2* 3!&.!-7(/=!4-*3 &41 37*4. 2!3 1&53 !4 /6* 041*(&1(!&4 4./4!403 ;03 &41 &(F -03 0(*;!03 8&</0. $$N"$RN ! 3 A(!.!4>3 A*(* 406*(/03 <0.A* 7/33*33 !4 & ./;*(&<;5 -/67;*.* ,/(6 4/.2!4>* <0. 2!3 '" "/(!4.(/10-.!/4./.2* 7(!=&.* ;&A/,.2* /6&43 2!3 A&3 1!3-/=*(*1 !4 R? 2&=!4>*<*,/(* <**4 D4/A4 !4 :0/.&F

.!/43/4;5 2* A/(D !3 !4,/0(*</!D3.2* ,!(3./,A2!-2.(*&.3/,.2* ,&6!;5.2* 3*F -/41 &41.2!(1/,7(/7*(.5 &41.2* ,/0(.2 /,;*>&;7(/-*10(* /70;&(&41 !4.*;;!>!<;* A!.2/0.<*!4>307*(,!-!&;'!.A&3 &,&=/0(!.* 2&41</D/,;&A &41 3*(=*1 &3 &,/041&.!/4 ,/(.2* ' = D " /,03.!4!&4

R.*&8.2* 6!;D"A2!.*9 3*&"456672 1&0>2.*(/,*(*03 &41 /(!3 --/(1!4>./ & !-!;!&4 ./(5A2!-2.2* 7/*.3 2!;/0*403 &41 2*/-(!.03 2&=* 6&1*,&6/03 32* A&3 70(30*1<5.2* 04-/0.2 6/43.*(;572*' 603<*!4>2*(3*;,!4;/=* A!.2.2* <*&0.!F ,0;-!3 2*K*&;/03>!&4.-(032*3 -!3 A!.2 & (/-D &41.2* 456 72 -2&4>*3 2*(<*;/=*1 !4./.2* !-!;!&4(!=*(A2!-2<*&(3 2!3 4&6* *403 8(6H "/ # L&A1, K&3.2* 6/3. -*;*<(&.*1 7253!-!&4 !4 &4.!:0!.5 &,.*(!77 -(&.*3 &41 &. .2* 3&6* .!6* /4* /,.2* 6/3. 7(/;!,!-& 6/4> &4-!*4. A(!.*(3 * A&3 </(4 &. *(>&6 4 !4 $ $ (*-*!=*1 &-(*(&,0;*10-&.!/4 !4 72!;/3/725 &41 &,.*&(A&(13 1*=/.*1 2!6F 3*;,./ 6*1!-&;3.01!*3 !4 2!3 4&.!=* -!.5 &. 65(4& /(!4.2 &41 ;*O&41(!& * (*.0(4*1./ *(>&6/4 !4 $VR &41 041*(F .//D .2* 6*1!-&;.(*&.6*4./,>;&1!&./(3 &3 >!=!4>2!6 <*3./77/(.04!.5,/(!4-(*&3!4>2!3 3./-D /,K*&;/03(!=&;3 ./ ;*-.0(*3/4 &4&./65 ,.*(.2(**5*&(3 2* A&3 1(!=*4 <5.2* &..&-D3 /,K*&;/03(!=&;3 ./ ;*&=* /6* 041*(.//D 3-!*4.!,!-K/0(4*53 .2(/0>2 (**-* &41 3!& &41.2*4 3*..;*1 &>&!4 !4 2!3 4&.!=* -!.5 0.2* A&3 3//4 (*-&;;*1<5.2* *67*(/(3 &(-03 0(*;!03 &41 !!-;03 *(03 &41 !4 $UN &77/!4.*1 7(!=&.* 7253!-!&4./.2* 5/04> /66 103 *1!*1!4 2!3 3*=*4.!*.2 5*&('&,.*(A!44!4> .2* 2!>2 *3.** 6/,2!3 -/4.*67/(&(!*3

&(.' /,' 2!3' A(!.!4>3' A*(*' 1*3.(/5*1' !4' &' ,!(*' !4' &;,' $@V /,' 2!3' </!D3' &(*' ;/3.' </0.' $NN' /,' 2!3' >*40!4*' .(*&.!3*3' 2&=*' <**4' 7(*F 3*(=*1" /,' $T' A*' 2&=*' ,(&>6*4.3' 6/(*' /(' ;*33' -/43!1*(&<;*' .2*' >*40!4*4*33' /,' $R' !3' G1/0<.*1' @C' &(*' 370(!/03' &45' 2&=*' 4/.' 5*.' <**4' 7(!4.*1' A2!;*' /.2*(3' *0!3.' /4;5' !4' &.!4' 5(!&-' *<(*A' &41' (&<!-' .(&43;&F .!/43' /(' 10(!4>' .2*' !11;*' >*3' 1/A4' ./' .2*' $?.2' -*4.0(5' .2*' &0.2/(!.5' /,' &;*4' A&3' .2(/0>2/0.' .2*' &3.' &41' *3.' 2*;1' G*37*-!&;;5' <5' .2*' (&<!&43' ./' <*' 04&33&!;F &<;*' 7(/;!,!-' A(!.*(' ;!D*' &;*4' A&3' 4&.0(&;;5' -&(*;*33' /,' 2!3' 3.5;*

!3' A(!.!4>3' ;*&=*' 4/' <(&4-2' /,' 6*1!-!4*' 06./0-2*1' 2*5' -/67(!3*' &4&./65' 7253!/F ;/>5' 7&.2/;/>5' 72&(6&-/;/>5' &41' .(*&.F 6*4.' 6/4>'.2*6'32/0;1'<*' 6*4.!/4*1'.2*' ,/;;/A!4>' "' " ' !4' T' </!D3' 4' (' ' ' ' ' (' "' :' 8$U' </!D39' "' (' ' ' T' </!D39' "' (' $ "' ' " ' P.2(*' A/(D3' !4-;01!4>' @?' </!D39' "' R (' "' +(' 8$C' </!D39' !3' </!D' /4' 6*1!-!4*' &' -/67;*.*' 3D*.-2' /,' .2*(&7*0F .!-3' A&3' !66*43*;5' 7/70;&(' *' A&3' &;3/' .2*' &0.2/(' /,' $R' </!D3' /,' -/66*4.&(!*3' /4' !77/-(&.*3' A2/6' 2*' -;&!6*1' &3' 2!3' 6&3F .*(' 2*3*' 3.!;;' 30(=!=*' !3' </!D3' -/4.&!4' !67/(.&4.' 4/.!-*3' /4' .2*' 2!3./(5' /,' 72!;/F 3/725' /,' A2!-2' 2*' 7(/,*3 3*3' 2!3' D4/A;*1>*' &41' *4.203!&3.!-' &16!(&./4' /6*' /,' 2!3' A(!.!4>3' 1*&;' 37*-!&;;5' A!.2' .2!3' 30<K*-.

&;;!' -

&;;03' ") '@

&6*3' 8$9' , 6/4>'.2*' /6&43' 70<;!-' >&6*3' A*(*' !4.!6&.*;5' -/44*-.*1' HA!.2' (*;!>!/03' A/(32!7' 8 /(' .2*' 70<;!-' %>&6*3' /,' .2*' (**D3' 'A & ' & ' V5 *& ' * '@ & ' 2*' /6&4' '/(!>!4&;;5' (&-*3' &77*&(',!(3.!4'.2*' A/(F 32!7' /,' &(3' &41' /4303'.2*'.0.*;&(5'1*!.!*3' /,' 2/(3*3' &41' 60;*3' 0.'!.' A&3' &;3/' &'=*(5' &4-!*4.' -03./6' ./' -*;*<(&.*' ' /(' >&6*3' =/A*1' /4' 37*-!&;' /--&3!/43' 7&(.!-0F ;&(;5' !4' .!6*' /,' A&(' 0-2' >&6*3' A*(*' HO30&;;5'=/A*1'./' 07!.*(' .2*' >(*&.*3.' 1*!.5' G/,' .2*' /6&43' 2*3*' *0-*7.!/4&;' -*;*<(&F .!/43' A*(*' 3/' /,.*4' (*7*&.*1' .2&.' .2*5' &.' ;*4>.2' 7&33*1' !4./' (*>0;&(' &440&;' ,*3.!=&;3' # ' ' 2*' 406<*(' /,' .2*3*' >&6*3'>(&*' G10&;;5' !4-(*&3*1' &41' 3/' 1!1' .2*!(' 10(&.!/4' .' .2*' *41' /,' .2*' (*70<;!-&4' 7*(!/1' .2*(*' HA*(*' 3*=*4' 3*.3' /,' >&6*3' A2!-2' /--07!*1' ?V' 1&53' ' !4' .2*' 6!11;*' /,' .2*' @41' -*4.0(5' ' $ V' 1&53' A*(*' >!=*4' 07' ./' .2*6' &41' !4' VC' ' &3' 6&45' &3' $UV' 4' /;1' .!6*3' .2*' >&6*3' /4;5' ;&3.*1' 7&(.' /,' .2*' 1&5' ' <0.' .2*5'>(&10&;;5' <*>&4' ./' .&D*' 07' .2*' A2/;*

1&5' ,(/6' *&(;5' 6/(4!4>' /4A&(13' .' &' ;&.*(' 7*(!/1' .2*5' A*4.' /4' !4' 6&45' -&3*3' !4./' .2*' 4!>2.' (*:0!(!4>' &(.!,!-!&;' !;;06!4&F .!/4' 2*' /6&4' (!.0&;' A&3' =*(5' 3.(!-.' &41' !.' 2&77*4*1' 7(*..5' /,.*4' .2&.' !4' -/4F 3*:0*4-*' /,' 3/6*' &--!1*4.&;' !4.*((07./4' /(' .(!=!&;' /=*(3!>2.' &4' " ' /(' (*7*.!F .!/4' /,' .2*' 37/!;*1' 1&5' !,' 4/.' /,' .2*' A2/;*' ,*3.!=&;' A/0;1' <*' /(1*(*1' ;*3.' .2*' >/13' 32/0;1' 2&=*' &45' -&03*' ,/(' &4>*(

2*' 1!,,*(*4.' 1 ' /,' .2*' 7(!*3.3' A*(*' (*37/43!<;*' ,/(' 307*(!4.*41!4>' .2*' >&6*3' 7(*3-(!<*1' !4' 2/4/0(' /,' .2*!(' (*37*-.!=*' 1!=!4!.!*3' 0.' !4' .2*' -&3*' /,' ,*3.!=!.!*3' =/A*1' <5' .2*' .&.*' .2!3' 10.5',*;;' ./' .2*' 2!>2' 6&>!3.(&.*3' &.' ,!(3.' ./' .2*' -/430;3' &,.*(A&(13'8&41' &;6/3.' *0-;03!=*;5' ./' .2*' 61!;*3' &41' &,.*(' 0>03.03' ./' .2*' 7(&*./(3' 2*' *07*43*3' A*(*' 7(/=!1*1' ,/(' <5' &' -*(F .&!4' 306' /,' 6/4*5'7&!1'/=*(',(/6' .2*' 70<;!-' .(*&30(5' ./' .2*' >!=*(' /,' .2*' >&6*3' /(' .2*' ' .2*' >(*&.*3.' /,' &;;' .2*' ,*3.!=&;3' .2!3' 306' &6/04.*1' 10(!4>' .2*' 7*(!/1' 7(*-*1!4>' .2*' 04!-' A&(3' ./' &</0.' E$ RNN' ,.*(' .2!3' 7*(!/1' !.' (*&-2*1' 3/6*' E NNN' &41' <5' V$' 2&1' (!3*4' ./' ER UVN' .' .2*' 3&6*' .!6*' .2*' >!=*(3' /,' .2*' >&6*3' 2&1' ./' 6&D*' ;&(>*(' 3077;*6*4.&(5'-/4.(!F <0.!/43' 2*' 1*6&413' /,' .2*' 70<;!-' A*(*' 3/' *0.(&=&>&4.' .2&.' !4' -/0(3*' /,' .!6*' .2*' &6/04.' /,' .2!3' 7(!=&.*' *07*41!.0(*' !4-(*&3*1' *4/(6/03;5' *37*-!&;;5' !4' .2*' ;&3.' -*4.0(5' 0>03.03' !41**1' .(!*1' ./' -2*-D' !.' <0.' 2*' A&3' /<;!>*1' ./' &;;/A' 2!3' 7(&*./(3' ./' 37*41' .2(*' .!6*3' &3' 60-2' /4' .2*' >&6*3' &3' A&3' 7&!1' ,/(' .2*' 70<;!-' .(*&30(5' 41*(' .2*' 67!(*' 6&45' *4&-.6*4.3' A*(*' !330*1' ./(*3.(!-.' .2*' *07*41!.0(*' /4' .2*' >&6*3' <5' ;&A' <0.' 4/' 7*(6&4*4.' *,,*-.' A&3' 7(/10-*1' =*4' &,.*(' .2*' C.2' -*4.0(5' .2*' *07*43*' (/3*' ./' &3' ;&(>*' &' 306' &3' ,(/6' EVN NNN' ./' E$VN NNN' 2*' /;1*3.'>&6*3' A*(*' .2/3*' /,' .2*' -!(-03' -/43!3.!4>' 6&!4;5' /,' 2/(3*"(&-*3' &41' -2&(!/."(&-*3' A!.2' >56 4&3.!-' -/4.*3.3' ./' A2!-2' /.2*(3' A*(*' &11*1' !4' -/0(3*' /,' .!6*' # 6-03' ,.*(' ?C' " ' 1(&6F &.!-' (*7(*3*4.&.!/43' A*(*' !4.(/10-*1' ,(/6' .(0(!&' 2*3*' A*(*' !4' @CN' " ' &41' /4F A&(13' *0-2&4>*1' ,/(' (*>0;&(' .2*&.(!-&;' 7*(,/(6&4-*3' 83**' (=!03' ( ) ' /4.*3.3' /,' >;&1!&./(3' &;3/' ,(/6' .(0(!&' A*(*' ,&32!/4&<;*' &,.*(@?C' " ' 0.' .2*3*' A*(*' /4;5' *02!<!.*1' 10(!4>' .2*' (*70<;!-&4' 7*(!/1' &.' ,04*(&;' >&6*3' 7(!=&.*' &41' /.2*(' *4.*(.&!4 6*4.3' 83**' @

2*' ,/;;/A!4>' (*>0;&(' ,*3.!4.!*3' A*(*' !4.(/10-*1' !4' .2*' (*70<;!-&4' 7*(!/1' &41' -/4.!40*1' !4' *0!3.*4-*' 04.!;' .2*' ;&.*3.' .!6*3' 8$9' 2*' ; ' 7 " ' 2*3*' A*(*

.2*' /;1*3.' >&6*3' /,' &;;' &41' GA*(*' !4' 3.(!-.F 4*33' -*;*<(&.*1' !4' 2/4/0(' /,' 07!.*(' <5' =!-./(!/03' >*4*(&;3' &.' .2*!(' .(!06723" 2*4-*' !.' A&3' .2&.' .2*5' !4-;01*1' &3' &' 37*-!&;' ,*&.0(*' &' 7(/-*33!/4' &8 ' ,(/6' .2*' &7!./;' ./' .2*' !(-03" &' 7&(.' /,' .2*' 7*(,/(F 6&4-*' A2!-2' 3** 63' &,.*(A&(13' ./' 2&=*' <**4' *6</1!*1' !4' .2*' /.2*(' >&6*3' /,' .2*' -!(-03' (!>!4&;;5' .2*5' ;&3.*1' /4;5' /4*' 1&5" <0.' !4' -/0(3*' /,' .!6*' .2*5' &<3/(<*1' 6/(*' &41' 6/(*' .!6*' .!;;' !4' .2*' !-*(/4!&4' &>*' .2*5' A*4.'/4',/(',!,.**4'8 *7.*6<*('C"$T9' ,.*(' .2*' 1*&.2',' 3*3&(' &4/.2*(' 1&5' A&3' &11*1' !4' 213' 2/4/0(' ,.*(' .2*' !4.(/10-.!/4' /,' .2*&.(!-&;' 7*(,/(6&4-*3' 3*=*(&;' 1&53' A*(*' .&D*4' 07" A!.2' .2*6' 2*' -0(0;*' 3*1!;*3' A*(*' !4' .2*' (*70<;!-&4' 7*(!/1' (*37/43!<;*' ,/(' .2*' 6&4&>*6*4.' 8@9' (-' 2*3*' /(!>!4&;;5' ;&3.*1' /4*' 1&5' <0.' &,.*(F A&(13' ,/0(.**4' /=*6<*(' C"$U' 2*5' A*(*' >!=*4' !4' .2*' $ ' 3"3' 041*(' .2*' 1!(*-.!/4' /,' .2*' 7;*<*!&4' 3*1!;*3' &41' *&(;5' !4-;01*1' 1(&6&.!-' *4.*(.&!46*4.3' 8 9' ; ' $ ' >!=*4' 041*(' .2*' 1!(-" G.!/4' /,' .2*' 7;*<*!&4' 61!;*3' !4' 2/4/0(' /,' *(*3' .2*' .0.*;&(5' >/11*33' /,' .2*' 2*' 1&.*' A&3' /(!>!4&;;5' 7(!;' $T' &,.*(A&(13' 7(!;' $@"$T' 8C9' ; " 8 =' !4' 2/4/0(' /,' 7/;;/ 2*3*' A*(*' !4.(/10-*1' 10(!4>' .2*' *-/41' 04!-' &(' &41' -*;*<(&.*1' =(!>!4!!;;5' /4' 0;5' $ ' -/4.!40!4>' &,.*(A&(13' ,(/6' 0;5' ?"$ ' 4' .2*' ;&3.' 1&5' /4;5' A*(*' .2*(*' &45' 7*(,/(6&4-*3' !4' .2*' -!(-03" .2*' (*3.' /,' .2*' ,*3.!=&;' A&3' >!=*4' 07' ./' .2*' 1(&6&' 2*3*' A*(*' .2*' /4;5' >&6*3',/(' A2!-2' !4' .2*' (*70<;!-&4' 7*(!/1' .2*' 7(3*./(' A&3' (*37/43!<;*' 8V9' ; ' 1< " ' !4' 2/4/0(' /,' .2*' &>4&' &.*(' !4.(/10-*1' @NC' &41' 2*;1' &.' ,!(3.' /4' 7(!;' C' &,.*(A&(13',(/6' 7(!;' C"$N' # ' - ' 2*5' !4-;01*1' 7*(,/(F 6&4-*3' </.2' !4' .2*' .2*&.(*' &41' !4' .2*' -!(-03' 2*5' A*(*' 041*(' .2*' 6&4&>*6*4.' /,' .2*' -0.0;*' &*1!;*3 ħ&41' .2*' 3&6*' (*6&(D' &77;!*3' ./' 8?9' .2*' ; ' A ' ,(/6' 7(!;' @R' ./' &5' ' # ' ' 0(!4>' .2*' !67*(!&;' 7*(!/1' .2*' 406<*(' /,' 7*(6&4*4.' ,*3.!=&;3' A&3' ;&(>*;5' !4-(*&3*1' 2*' <!(.21&5' /,' 0>03.03' ,/(' !43.&4-*' 8 *7.*6<*(' @ 9' A&3' (*>0;&(;5' -*;*<(&.*1' A!.2' ' " ' &41' .2*' 1 ' 8 -./<*(' "$@9' A*(*' !4F 3.!.0.*1' !4' 2/4/0(' /,' 2!3' 6*6/(5 !1*' <5' 3!1*' A!.2' .2*' 70<;!-' >&6*3' 7(!=&.*' 7*(,/(6&4-*3' A*(*' /,.*4' >!=*4' <5 3/-!*.!*3',&6!;!*3' &41' !41!=!10&;3' /4' 37*-!&;' /--&3!/43' 30-2' &3' .2/3*' /,' <!(.23' 6&((!&>*3' /(',04*(&;3' /6*.!6*3' .2*' /<(*-.' A/0;1' <*' 6*(*;5' ./' 7;*&3*' .2*' 70<;!-(3/6*.!6*3' ./' (&!3*' 6/4*5' 2*' >!=*(' /,' .2*' *4.*(3' .&!46*4.' 2&1' ;!D*' .2*' 307*(!4.*41*4.' /,' .2*' 70<;!-' >&6*3' .2*' 7(!=!;*>*' /,' ;!-./(3' &41' .2*' /1' - ' 2&(>*3' ,/(' &1F 6!33!/4' A*(*' 6&1*' /(' 4/.' &--/(1!4>' ./' .2*' /--&3!/4' 0.'c.2*' &16!33!/4' ./' .2*' 70<;!-' >&6*3' A&3',(**' !.' <*!4>' &;A&53' 041*(3.//1' .2&.' 37*-!&;' 3*&.3' A*(*' (*3*(=*1' ,/(' .2*' 6&>!3.(&.*3' 7(!*3.3' 3*4&./(3' &41' 7&(.!-0;&(' ,&6!;!*3' &41' !41!=!10&;3' # ' & ' !,!-03' @ ' $ = ' ' F ' ? ,' 3/-!&;' >&6*3' .2*' &4-!*4.3' &41' *37*F -!&;;5' .2*' (**D3' 2&1' 7;*4.5' 2*' 3/' 7/70;&(' &.' (**D' <&4:0*.3' .2*' >&6*3' /,' <&;;' /,' A2!-2' </.2' (**D3' &41' /6&43' A*(*' ,/41' &41' .2*' >&6*3' A!.2' 1!-*' &(*' 1*3-(!<*1' !4' 3*7&(&.*' &(.!-;*3' ' >&6*' /,' 1(&0>2.3' &" ' &77*&(3' &3' *&(;5' &3' /6*(' &41' A&3' 3&!1' ./' 2&=*' <**4' .2*' !4F =*4./4' /,' J;&6*1*3' 0.' A*' 2&=*' 4/' D4/A;*1>*' /,' !.3' 4&.0(*' &41' (0;*3' &41' 2&=*

8 &3*' 7&!4.!4>' &(!3" ('N' RU'.&,'8? 9 =*(5'3-&4.5' !4,/(6&./4' &</0.' .2*' 3!6!;&(' >&6*3' 7;&5*1' !4' ;&.*(' .!6*3' 2*' H>&6*' /,' -!.!*3!' 3**63' ./' 2&=*' (*3*6<;*1' /0(' -2*33' /('1(&0>2.3' 2*' </&(1' A&3' 1!=!1*1' !4./' 37&-*3' &41' 6/=*6*4.3' 6&1*' 07/4' !.' A!.2'3./4*3" .2*' /<(*-.' <*!4>' ./' >*.' 5/0(' /77/4*4.' !4./' -2*-D' 2*' /6&43' 2&1

3*=*(&;' >&6*3 / ,' .2*' 3/(.' &6/4>' A2!-2' .2*' ' ' " < ' /(' >&6*' &.' 3/;1!*(3' !3' ./' &' -*(.&!4' *0.*4.' D4/A4' 2!3' A&3' & &6*' /,' 3!*>*' 2*' 6*4' &$ ' A*(*' !=!1*1' !4./' 7(!=&.*3' & " ' &41' .2*' /<K*-.' A& ' ./' .&D*'/(' ./' >*.' 5/0(' &1=*(3&(53' 3./4*3' !4' -2*-D' 4' .2*' '" ' ' : ' /(' >&6*' /,' $@' ;!4*3' 1!-*' A*(*' 03*1' 2*' 1!-*"</&(1' A&3' 1!=!1*1' !4./' @C' 37&-*3' <5' $@' 7&(&;:*;' ;!4*3' !4.*(3*-.*1' <5' &' ;!4*' &.' (!>2.' &4>;*3' &-2' 3!1*' 2&1' $V 6*4' /4*' 3*.' <*!4>' <;&-D' &41' .2*' /.2*(' A2!.*' *,/(*' *&-2' 6/=*' .2*' 1!-*' A*(*' .2(/A4' &41' .2*' 6/=*' 1*.*(F 6!4*1' <5' .2*' 406<*(' 2!-2' .0(4*1' 07' ' =*(5',&=/0(!.*' >&6*' A&3'))' &41' =*4' > 2' ' &.' ' ' E < ' .' 2*;1' /0.' 3/' 6&45' ,!4>*(3B_&41' 70.' 3/' 6&45' -/!43' 7*<<;*3' /(' 40.3' !4' 5/0(' 2&41' &41' 6&1*' 5/0(' &1=*(3&(5' >0*33' A2*.2*(' .2*' 406<*(' A&3' /11' /(' *=*4' 2*' /6&4' -2!;1(*4' &41' !41**1' .2*!(' *;1*(3' A*(*' =*(5',/41' /,' =&(!/03' >&6*3' A!.2' 40.3

> = 3 ? + & ' -' !

J4B*1*3' 2*' 3/4' /,' (/3' D!4>' /,' &(1J4!&' <(/.2*(' /,' ;03' &41' 33 (" J ' --/(1!4>' ./' /6*(' 2*' &3' -&((!*1' &A&5' <5' .2*' >/13',/(' 2!3' <*&0.5' ./' /<*' .2*' -07"<*&(*(' /,' L*03' &41' /4*' /,',2*' !6 6/(F .&;3' 4' .2*' ;&.*(' ;*>*41' 2*' !3' -&((!*1' &A&5' <5' L*03' 2!6 3*;,' !4' .2*' 32&7*' /,' &4' *&>;*' /(' <5' .2*' *&>;*' /,' L*03' /' 6&D*' &6*413' ./' 2!3',&.2*(' L*03' 7(*3*4.*1' 2!6' A!.2',/0(' !6 6/(.&,' 2/(3*3',/(' 2!3' -2&(!/.' &456*1*3' A&3&,.*(A&(13'(*>&(1*1' &3' .2*' >*4!03' /,' .2*' 3/0(-*3' /,' .2*' !;*' &41' .2*' &3.(/4/6*(3' 6&1*' 2!6' !4./' .2*' -/43.*:;&.!/4' 2*' (&7*' /,' &456*1*' A&3' (*7(*3*4.*1' !4' &' >(/07' <5' *' 3-0;7./(' > -2&(*3# ' (

&(>;' 03' &(.;&;;3',;/0(!32*1' !4' .2*' (1' -*4.0(5' ' &41' A&3' .2*' &0.2/(' /,' &' >(*&.' A/(D' <&3*1' 07/4' (**D' &41' &.!4' 3/0(-*3' /4' &>(!-0;.0(*' &41' =*.*(!4&(5' 3-!*4-*' /43!1*(&<;*' ,(&>6*4.3' (*6&!4' 1*&;!4>' A!.2' .2*' .(*&.6*4.' /,' -&..;*' #5' $ '8 ' &41' .2*' 6*1!-&;' 03*3' /,' 2*(<3' &41',(0!.'8 ;,B1#-,4&' -' ' ' ,

; !41(' ' 1*3-*41&4.' /,' 4 (-203' D!4>' /,' (>/3' 2*4' J4 03' ;!D*A!3*' &' 1*F 3-*41&4.' /,' 4&*203' -&6*' ./' (>/3' &41' ;&!1' -;&!6' ./' .2*' 3/=*(*!>4' 7/A*(' .2*' -!.!Q*43' A*(*' 1/0<.,0;' !4' A2/3*' ,&=/0(' .2*5' 32/0;1' 1*-!1*' 2!;*' .2*5' A*(*' 2*3!.&.!4>' &' A/;',*;;' 07/4' .2*' -&..;*' A2!-2' A*(*' ,**1!4>' <*,/(*' .2*' -!.5' &41' D!;;*1' .2*' <0;;' A2/' A&3' 1*,*41!4>' .2*6' 2*' -!.!Q*43'(*>&(1*1' .2!3'&3' &' 3!>4',/(' 6' 2*&=*4 &41' !4.*(7(*.!4>' .2*' A/;' &3' 6*&4!4>' &4&03' .2*5'-/67*;;*1' *;&4/(' ./' (*.!(*' !4' 2!3',&=/0(' # ') ' 4' .2*' ' /,' ,,!3-25;03' &3>03' !3' D!4>' /,' (>/3' *' >!=*3' &4&03' &' ,(!*41;5' A*;-/6*' &41' 1*,*413' 2!6' P>&!43.' .2*' 3/43' /,' B (7.03' 0.' 2*' !3' =&4:0!32*1' <5' .2*6' (*.!(*',(/6' .2*' 3/=*(*!>4.5' 37/4.&4*/03;5' !4' ,&=/0(' /,' .2*' 3.(&4>*(' &41';*&=*3' .2*' -/04.(5 *;;!03' 8 9' 6" ' ' (8@@' L' ' /6&4' A(!.*(' /,' .2*' &>*' /,' .2*' 4./4!4*3' &</0.' $ N"$UN' ' ,.*(' (*-*!=!4>' 2!3' *10-&.!/4' !4' (2*./(!-' &.' /6*' 2*' A*4.*.?' .2*43' !4' 2!3' .2!(.!*.2' 5*&(' /(' .2*(*&</0.3' ./' 3.015' 72!;/3/725' *(*' 2*' 3&A' 60-2' /,' *(/1*3' ..!-03' *3!1*3' 3.015!4>' 72!;/3/725' 2*' 37*4.' .2*' ;/4>' A!4.*(' 4!>2.3' !4' A!1*' &41' =&(!/03' (*&1!4>' A2!-2' 2*' .//D' 07' &>&!4' A!.2' &(1/0(' &,.*(' 2!3' (*.0(4' ./' .&;5' (/6'.2*' 6&.*(!&;.203' -/;;*-.*1' 2*' -/67/3*1' .2*' .A*4.5' </!D3' /,' 2!3' > ' M ' A(!..*4' !4' (*6*6F <(&4-*' /,' 2!3' 1&53' &.' .2*43' 4*' </!D' .2*' *!>2.2' !3';/3.' &41' /4;5' .2*' 2*&1!4>3' /,' .2*' -2&7.*(3' (*6&!4>' 2*' (*6&!4!4>' 4!4*.**4' &(*' &' 3*(!*3' /,' *0-*(7.3' ;//3*;5' 3.(04>' ./>*.2*(' ,(/6' &;' D!413' /,' (**D' &41' &.!4' &0.2/(3' *37*-!&;;5' .2*' &4.*"-;&33!-&;' A(!.*3' 2*5' &;3/' --6.&!4' &' 6&33' /,' !4,/(6&.!/4' &41' &' 406<*(' /,' /7!4!/43' /(&;;5' 1*;!=*(*1' <5' -/4.*(4A(&(5' 3-2/;&(3' 2*' A2/;*' ,/(63' &' =.10&<;*' 3./(*2/03*' /,' 4/.*3' /4' :0*3.!/43' /,' 2!3./(!-&;' &4.!:0&(!&4' &41' ;!.*(&(5' !4.*(*3.' *;;!03' 3.5;*' !3' 3/<*(' &41';!D*' .2&,' /,' &4' &16!(*(' /,' (/4./' # ' ,0;;' /,' &(-2&!-' *07(*33!/43 *63' #6 - ' 2*' &(.' /,' -0..!4' 7(*-!/03' 3./4*3' A&3' *&(;5' ;*&(4*1' :' .2*

' ^ ' ' ' ' H LL!!' ' X *1' &37*('!4' !*44&' 8 2&;-*1/4('!4' (;' ' !4*.9 43*&6' ! a.&!*.' ' ; T !

(**D3',(/6' .2*' >K(7.!&43' &41' (!*4.&;3' A2/' 2&1'7(&-.!3*1'!.',(/6'(*6/.*'&4.!:0!.5' 2*' -0..!4>3' A*(*'/(!>!4&;;5' /4;5' -/4-&=*' &41' .2*' >*63' 3*.' !4' (!4>3' &41' 03*1' &3' 3*&;3" &6*/3' /(' 3./4*3' -&(=*1'!4' (*;!*,' ' ,!(3.'-&6*!

!4./ 03* !. A/0;1 3**6 !4 .2* .!6* /, ;*0&41*(.2* (*&. &41 A*(* 03*1 ,/(/(F 4&6*4. /(-&6*/3 7(*-!/03 3./4*3 /, =&(!/03 -/;/0(3 A*(* 03*1 *37*-!&;;5 .2* /450 2* ;&5*(3 /, .2* 3./4* A*(* 3/

8R9 8C9

8 &7;*3 03*0 6 9

.(*&.*1 .2&. .2* ,!>0(*3 3.//1 /0. <(!>2. -6 & 1&(D >(/041 4*3&(-203 /, &6/3 .2* ,&.2*(/, .2* 72!;/3/72*(5.2&> (& 8&</0. ?NN / 9 !3 .2* /;1*3. (**D K*A*;;*(A2/3* 4&6* 2&3 -/6 I 1/A4 ./ 03 4 .2* C.2 -*4.0(5 - .2* 6/3. -*;*<(&.*1 6&3.*(A&3 5(>/.&!*3 .2* /4;5 &(.!3. A2/6 ;*0&41*(.2* (*&. A/0;1 &;;/A ./ -0. 2!3 ;!D*4*33 4 .2* &>* /, 0>03.03 A* 2*&(/, !/3 -1(!1*3 A2/ -0. .2* *67*(/(3 ;!D*4*33 /4 & 3./4* A2!-2 A&3 03*1 &3 &3*&; <5 .2* 30-F -**1!4> 3*3&(3 2* .(03-&43 &41 /6&43 .//D 07 .2* &(. =*(5 *&(;5 <0. 4*=*(&..&!4*1 .2* 3&6* 7*(,*-.!/4 &3 .2* (**D3

8V9 8?9 (& ==! !! !K,.(3!/!(.3.43

/

8 &7;*3 03*0 6 9

2* ,&4-5 ,/(6&D!4> -/;;*-.!/43 /, <*&0.!F ,0; >*63 &(/3* &3 *&(;5 &3 .2* $3. -*4.0(5 2* !4.&>;!/3 /(-0. 3./4*3 2&=* -/6* 1/A4 ./ 03 !4 >(*&.*(406<*(3 .2&4 &45 /, .2* 6/406*4.3 /, &4-!*4. &(. 2/3* A2!-2 <*;/4>*1 ./ .2* &1=&4-*1 7*(!/13 /, 3.5;* 7(*3*4. *0&67;*3 /, .2* 6/3. <*&0.!,0; A/(D6&432!7 .2* 6/3. /(!>!4&; -/67/3!.!/4 &41 .2* 6/3. !4.*(*3.!4> 30<K*-.3 .2* ;&."

.*(<*!4> 6&!4;5 .&D*4 ,(/6 65.2/;/>5 6/4> .2* (*6&!4!4> (**D -&6*/3 &4 !67/(.&4. 7;&-* </.2 ,/(3!Q* &41 <*&0.5 603. <* >!=*4 ./ .2* /4Q&>& &6*/ !4 . *.*(3<0(> 2!3 !. 2&3 <**4 -/4K*-.0(*1 (*7(*3*4.3 .2* <03. /, ./;*65 !;;&1*;7203 &41 (3;4 * 2!3 3!3.*(&41 A!,* f<0. !. 6/(* 7(/<&<;5 -/66*6/(&.*3 *(/ &41 >(!77!4& ,!> U g 2* ;&(>*3. &41 6/3.

8U9 H L I

8 &(1/4K!" /, Z 3.(&.& ?0V !4-;!*3 433!&0 67*(!&; &<!4*. 9

37;*41!1 /, .2* -&6*/3 A2!-2 2&=* -/6* 1/A4 ,(/6 .2* /6&4 7*(!/1 &(* .2/3* &. !*44& 8,!> R9 &41 &(!3 (*7(*3*4.!4> !4 >(/073 &41 ,!>0(*3 .2* ,&6!;5 /, 0>03.03

.O E / & & %@5$ 1A

0>03.03 &41 !=!& (*-*!=!4> (0303 &41 !<*(!03 /4 .2*!((*.0(4 ,(/6 .2*!(!41*;!- &41 <3*.!&4 -&67&!>&!3 8 &(1/450 /,@ 3.(&.& TOR !4-2*3 !*44& -&<!4*. 9

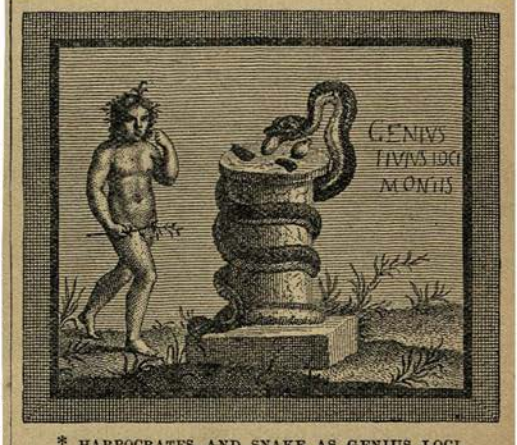
2/;* =*33*;3 A*(* 3/6*.!6*3 6&1* /, 3!4>;* 3./4*3 &41 B1/6*1 A!.2 (*;!*,3 4 !43.&4-* !3 .2* &4.0&4 =&3* 4/A &.

Brunswick, 6⅛ inches high, 2⅛ inches thick, consisting of a single onyx. The lid, handle and base are of gold. Two parallel lines of gold divide the surface into three parts, the midmost of which has twelve figures, representing the festival of the Thesmŏphŏrĭa, in three groups; while the highest and lowest are adorned with leaves, flowers, ears of corn, fruits, bulls' heads, and other objects connected with the worship of Dēmētēr. Works of this kind are sometimes made of coloured glasses. The most celebrated instance of this sort is the Portland Vase now in the British Museum. Its height is about 10 inches. The material is a dark blue transparent glass, with beautiful reliefs in white opaque enamel (fig. 9). [See

(9) * THE PORTLAND VASE.
(British Museum.)

Catalogue of Engraved Gems in the British Museum, 1888, pp. 225–8; and (on the subject in general) *Introduction*, pp. 1–38.]

Gĕnĭus (= creator, begetter). The Italian peoples regarded the Genius as a higher power which creates and maintains life, assists at the begetting and birth of every individual man, determines his character, tries to influence his destiny for good, accompanies him through life as his tutelary spirit, and lives on in the *Lărēs* after his death. (*See* LARES.) As a creative principle, the Genius is attached strictly speaking, to the male sex only. In the case of women his place is taken by Juno, the personification of woman's life. Thus, in a house inhabited by a man and his wife, a Genius and a Juno are worshipped together. But in common parlance it was usual to speak of the Genius of a house, and to this Genius the marriage bed was sacred. A man's birthday was naturally the holiday of his attendant Genius, to whom he offered incense, wine, garlands, cakes, everything in short but bloody sacrifices, and in whose honour he gave himself up to pleasure and enjoyment. For the Genius wishes a man to have pleasure in the life he has given him. And so the Romans spoke of enjoying oneself as indulging one's Genius, and of renunciation as spiting him. Men swore by their Genius as by their higher self, and by the Genius of persons whom they loved and honoured. The philosophers originated the idea of a man having two Genii, a good and a bad one; but in the popular belief the notion of the Genius was that of a good and beneficent being. Families, societies, cities and peoples had their Genius as well as individuals. The Genius of the Roman people (*Genius Publĭcus*, or *Pŏpŭli Rōmāni*) stood in the forum, represented in the form of a bearded man crowned with a diadem, a cornucopia in his right hand, and a sceptre in his left. An annual sacrifice was offered to him on the 9th October. Under the Empire the Genius of Augustus, the founder of the Empire, and of the reigning emperor, were publicly worshipped at the same time. Localities also, such as open spaces, streets, baths, and theatres, had their own Genii.



* HARPOCRATES, AND SNAKE AS GENIUS LOCI.
(*Pitture d'Ercolano*, i 207.)

These were usually represented under the form of snakes (*see* cut); and hence the common habit of keeping tame snakes.

Gennētæ. This was the Athenian term for the members of the 360 ancient families (*gennæ*), thirty of which made up one of the twelve *phrātrĭæ* of the four old Ionic

.(!<*3 2*3* ,&6!;!*3 -/43!3.*1 / 3/6* .2!(.5 2/03*3 A2/ (*,*((*1 .2*!(/(!>!4 &41 4&6* ./ & -/6 6/4 &4-*3./(&41 /<3*(=*1 & -/6 6/4 A/(32!7 A!.2 37*-!&; 7(!*3.3 ./ 307*(!4.*41 !. 2* /<*-.3 / .2!3A/(32!7 A*(* L*03 *(D*! 3 8.2* >/1 / 2/03* &41 2/6*9 7/;;/ &.(//38.2*>/1 / .2* ,&6!;5 &41 /.2*(.0.*;&(5 1*!.!*3 077/3!4> .2&.& ,&6!;5 A/(32!7 (/3*./ .2* 1!>4!.5 / ,& 3.&.* -*(*6/45 .2* 7(!*3.;5 /,,!-* (*6&!4*1 2*(*1!.&(5 !4 .2* ,&6!;5 #1 "" (*6*6<*(3 /, .2* 1 "" 2&1 &;&A /, !42*(!.&4-* A2!-2 .2*5 /<3*(=*1 &6/4> .2*63*;=*3 &!4.&!4*1 <5 .2*3* (*;!>!/03 &41 ;*>&; .!*3 .2* 1 "" &41 .2* (30(=!=*1 .2* /;1 /4!- .(!<*3 &,.*(.2* &</;!.!/4 /, .2* ;&..*(<5 ;*!3# .2>4*3 2* 7(*3!1*4. / , .2* 1 "" 307*(!4.*41*1 .2* *4(/;6*4./, 4*A 6*6<*(3!4./ !. &. .2* ,*&3./, .2* 71.;(,1 .2* /--&3!/4 /4 A2!-2 .2* 4*A 6*6;B(3 /, .2* (A*(* &;3/ *4(/;;*1 # ! ! 9 -!.!Q*4 A2/ 1!1 4/. <*;/4>. /&1 "" 7/0;1 /4;5<*-/6* 6*6<*(/ , /4* <5 &1/7.!/4 &41 041*(-*(.&!4 -/41!.!/43 *43 8 &.!49 , &6!;5 8!4 .2* A!1*3. 3*43* /, .2* A/(19 1*3-*41*1 /4 .2* 6&;* ;!4* ,(/6 &/-/6 6/4 &4-*3./(&41 .2*(*,/(* <*&(!4>&-/6 6/4 4&6* `N ;/4> &3 .2* 7&.(!-!&43 A*(* .2* /4;5 -!.!Q*43 A!.2 ,0;; (!>2.3 .2*(* -/0;1 /, -/0(3* <* 4/ 1 " L 4/. 7&.(!-!&4 2* /;1*3.1 " <*;/4>*1 ./ .2* .(!<*3 /, .2* &.!4 3 &41 .2* &<!4* !.;*3!1 .2*3* .2*(* A*(* .2* 1 " <*;/4>!4>. /.2* ;<&4 ,&6!;!*3 <(/0>2. / /6* <5 ^!4> 0;;43 /3.!:;43 &41 *6</1!*1 <5 .2* /.2*(1 " !4 .2* -/6604!.5 &3 &.2!(1 .(!<* .2* .!- (*3 2*3* .2* 6/3. &4-!*4. A*(* -&;;*1 1 " &3 1!3.!4>0!32*1 ,(/6 .2* 1 " " A2!-2 !4-;01*1 .2* 7;*<*!&43 A2/6 &(:0!4;03 (!3-03 (&!3*1 ./ .2* (&4D /, 7&.(!-!&43 2*(* A*(* !4 ;&.*(.!6*3 !4F 3.&4-*3 /, 7;*<*!&4 1 " <*!4> (&!3*1 ./ 7&.(!-!&4 (&4D <0. .2*3* <*-&6*(&(*(&41 (&(*(3/. 2&. .2* 406<*(/ ,7&.(!-!&4 1 " A&3 =*(5 60-2 (*10-*1 0(!4> .2* ;&3. 5*&(3 /, .2* *70<;!-A* 2*&(/, /4;5 ,/0(.**4 3.!;! 4 *0!3.*4-* !4-;01!4>. 2!(.5 8/(,&6!;!*3 !4 .2* 4&((/A*(3*43*9 &45 ;&(>*1 " A*(* 1!=!1*1 !4./ 2/03*3 & A2/ 2&1 &-/6 6/4 1" !4 &11!.!/4 ./ .2* 4&6* /, .2*!(1 " . 203 .2* 1 " $!4-;01*1 .2* $ 1 " " $ $ $ (=:" $ 7 " $; "2 $ 5 $ $ (1 $ $ "" !$ 6/4> .2* 7;*<*!&43 &3 &6/4>. 2* 7&.(!-!&43 .2* 4&.0(&;;5 1*=*;/7*1 !4./ &;&(>*(-!(-;* /, (*;&.!/432!7 <0. 1 " !4 .2* /;1 3*43* A*(* 4/. , /(6*1 <5 .2* 7(/-*33 2/0>2 .2* 7;*<*!&4 2&1 2!3 >*4.!;* 4&6* &41 &,.*(A&(13 2!3 1" " 2* 2&1 4/. .2* (*&; 1 " ;;1 " /(6*6<*(3 /, &1 " 2&1 &(!>2. ./ !.3 -/6 6/4 7(/7*(.5 A2!-2 !4F -;01*1 &-/6 6/4 <0(!&;"7;&-* 2*5 &;3/ 2&1 &.*3.&6*4.&(5 ;&A /, .2*!(/A4 A2!-2 ;&3.*1 /4 !4./ .2* !67*(!&; 7*(!/1 2*4 .2* 6*6<*(/, &1 " 1!*1 A!.2/0. 2*!(3 /, 3 </15 .2* 4*0. ./ !42*(!. &&3 !4 .2* -&3* /, .2* 7;*<*!&43 A*(* .2* 1" /(1 " 4 .2* 6&;* 3!1* A2/ -/0;1 7(/=* .2*!((*;&./!432!7 ,&!;!4> .2*3* .2* 1 " 1!=!1*1 .2* !42*(!.&4-* 2* *0!>*4-* /, .2!3 ;&A (*41*(*1 !. !4 /;1 .!6*3 4*-*33&(5 ./ /<.&!4 .2* " " /, .2* A2/;* 1 " !4 -&3*3 /, &1XB.!/4 &41 .*3.&6*4.&(5 <*F :0*3. 4/.2*(-/43*:06!-* /, !. A&3 .2&. !. A&3 .2* 10.5 /, .2* 1 " ./7(/=!1* & ; , /(!43&4*7*(3/43 &41 37*41.2(!,.3 &41 &>0&(1!&4 , /(6!4/(3 =*! 1 " 2&1 !.3 6**.!4>3 &. A -2 (*3/;0.!/43 A*(* K7&33*1 <!41!4> !.3 !41!F =!10&; 6*6<*(3 6&..*(3 &;,*-.!4> .2* 1 " .A&3 &1*-(** / , .2* 1 " " , /(!43.&4-* A -2 , /(<&1* &45 /4* / , !.3 6*6<*(3 ./ <*&(.2* " " &(-03 3 *=&K5 A2*.2*(7&.(!-!&4 /(7;*<*!&4 2&1 -*(.&!4 3&-(!,!-*3 A2!-2 !. A&3 </041 ./ 7*(,/(6 3/ 2&1 *=*(5 1 " &3 &; &(>*(/ (B.*41*1 ;,;6*6<*(3 /, .2* 1 " A*(* 4.!.;*1 &41 !41**1 </041 ./ ;&D* 7&(. !4 .2* 1 /(-/6F 6/4 A/(32!7 /, .2* 1 " 2*3* -*&3*1 ./ *0!3. A!.2 .2* *0.!0*./4 /, & 1 " K &41 !, & 6*6<*(/, & 1 " ;*, !. .2!3 (!>2. &41 10.5 &;3/ -&6* ./ &4 *41 . 32/0;1 <* &11*1 .2&.-*(.&!4 70<;!-(*;!>!/43 3*(=!-*3 A*(* &33!B*1 ./ 7&(.!-0;&(1 " .2&./, *(-.;; 3 , /(!43.&4-* ./ .2* 1 " ! "

*/>(&725 */>(&72!-&; (*3*&(-2 &41 ;!.*(&.0(* .//D .2*!((!3* ;!D* 2!3./(!-&; ;!.*(&.0(* &6/4> .2* ;/4!&43 /, 3!& !4/(2*!(*0.*41*1 -/6 6*(-* &41 .2*!(&-.!=!.5 !4 ,/041!4> -/;/4!*3 *4;&(>*1 .2*!(>*/F >(&72!-&; 2/(!Q/4 2* 4*-*33!.5 A&3 .!!43 ,*;. /, 0.!;!Q!4> &41 (*>!3.*(!4> .2* D4/AF ;*1> &;(*&15 &-:0!(*1 ,/(.2* 70(7/3* /, 1!3-/=*(!4> .2* ,/(6 &41 -/43.!.0./!4 /, .2* *&(.2 2* ,!(3. &..*67. &. 3D*.-2!4> & 6&7 /, .2* A/(;1 A&3 6&1*<5 (!3.R>V(&3 /, !;*.03 &</0. V?N !3 D!436&4 ?-R.3*03 /4* /, .2* A(!.*(3 -&;;*1 ; 1 1 (A2/ ,;/0(!32*1 &</0. ,!,.5

&;3/'K0(!31!-.!/4' !4' .2*' -&3*' /,' &;' /,,*4-*'3' A2!-2' A*(*' 70,;!32&<;*' <5' 1*&.2' /(' ;/33' /,' -!=!;'(!>2.3' 2*5'3&.' !4'K01>6*4.' !,' 4*-*3"
&(5' *=*4' /4' .2*' D!4>3' !4' ;&.*(' .!6*3' &33/Y -!&.!4>' .2*' *72/(3' A!.2' .2*6' !4' .2!3' ,04-F .!/4' 2*!(' &0.2/(!.5' ;!D*' .2&.' /,' .2*' D!4>3'30,,*(*1'-/43!1*(&<;*'(*3.(!-.!/4'&.'.2*' 2&413' /,' .2*' *72/(3' 2*5' 2&1' &' 3!6!;&(' W9 3!.!/4' !4' !2*' (*.&4'-/43.!.0.!/4'&--/(1F !4>' ./' A2!-2' /4;5' .2*' 6*6<*(3' /,' .2*' 2!>2*3.' 6&>!3.(&-5' -&;;*1' .2*' $ ' /(' (*>0;&./(3'-/0;1'*4.*(' .2*'-/04-!;' &41' .2&.' &,.*(' &' <;&6*;*33' .*(6'/,' &12;!4!3.(&.!/4 (K,/4'/(' B14*3' '>!&4.' A!.2' .2(*' </1!*3' &41' 7/A*(,0;' A!4>3' .2*' 3/4' /,' 2(53&/(' &41' &;;!((2 *' *' 1A*;.'!4' .2*' !3;&41' /,' (5.2*!&' ; 14>' !4' .2*' /-*&4' !4' .2*' *0.(*6*' A*3.' &41' A&3' .2*' 7/33*33/(' /,' &' 2*(1' /,' (*1' -&..;*' A&.-2*1' <5' .2*' 32*7F 2*(1' 0(5.; 4' &41' &' .A/"2*&1*1'1/>' -&;;*1' (.2(/3' .' A&3' /4*' /,' .2*' .A*;=*' ;&</0(3' /,' *(,.-;*3' ./' -&((5' /,,' .2*3*' -&..;*' &41' &,.*(' &' =!/;*4.' -/4.*3.' ./' 3;&5' .2*' 70(30!4>' *,5/4' A!.2' 2!3' &(((/A3 >&4.*3' 8 !&4.39' 4' /6*(' .2*' T 2' !8 " ' &(*' &' A!;1' &41' >!>&4.!-' (&-*' /,' &</(!>!4*3' D!436*4' /,' .2*' >/13';&3' &(*' .2*' 5-;/7*3' &41' 23*&-!&43' !.2' .2*!(' D!4>' 0(,6 1/4' .2*5' &(*' 1*3.(/5*1' ,/(' .2*!(' A!-D*14*33' *3!/1' 6&D*3' .2*6' .2*' 3/43' /,' 3*&' 37(04>',(/6' .2*' <;//1' /,' .2*' 60.!F ;&.*1' (!403' *!.2*(' *3!/1' 4/(' /6*(' D4/A' &45.2!4>' /,' .2*!(' 3.(0>>;*' A!.2' .2*' >/13'#6 1 " ' .2*' 3./(5' /,' A2!-2' 3**63' ./' <*' &' (*,;*0!/4' /,' .2*' 65.2' /,' .2*' !.&43' &41' .2*!(' -/4.*3.' A!.2' .2*' >/13' &41' ./' <*' &33/-!&.*1' A!.2' ;/-&;' ;*>*413' 2*' .A/' &(*' /,.*4'-/4,03*1' <5';&.*(' 7/*.3' 2*' 7;&-*' /,' .2*' -/4.*3.' A&3' 2;*>(&' /(' .2*' 7;&-*' /,' <0(4!4>' 2;*>(&' A&3' &;A&53' ;/-&;!0*1'!4'=/;-&4!-'(*>!/43' 4' .2*' *&(;!*(' ./(!*3'!.'!3'/4' .2*' &-*1/4!&4'7*4!430;&' /,' &;;*4*'' &41' !4' ;&.*(' .!6*3' /4' .2*' 2;*'' >(&*&4' 7;&!43' !4' &67&4!&' <*.A**4' 06#*' &41' &72&' /(' &>&!4'&.' &(.*3303' !4' 7&!4' *1' /4'<5' ;/ <4*03' &41' /(725(!/4' .2*5' 20(;*1' (/-D3' &41' <0(4!4>' .(04D3' /,' .(**3' &>&!43.'2*&=*4' 0.' .2*'>-13'-&;;*1' *(&-;*3' ./' .2*!(' &33!3.&4-*' &'7(/72*X5'2&=!4>'A&(4*1' .2*6' .2&.' .2*5'A/0;1' <*' 04&<;*' ./' 1*3.(/5' .2*' >!&4.3' A!.2/0.' .2*' &!1' /,' &' 6/(.&;' *(&-;*3'3;*A'4/.'/4;5' ;-5 4*03' <0.'>&=*' .2*' /.2*(3'A2/6' .2*'>/13'2&1'3.(0-D'1/A4' .2*!(' !" ' A!.2' 2!3' &(((/A3' 3' 4-B' ;&103' A&3' ,;5!4>' .2*4`' .2(*A'.2*' !3;&41' /,' !-!;5'07/4'2!6' &;5< .*3' A&3' <0(!*1' %<5' 3*!1/4' 41*(' .2*' !3;&41' /,' !35(3'&' 7!*-*' /,' .2*' !3;&41' /,' /3' 2!-2' /3*!1/4' 2&1' <(/D*4' /,,' A!.2' 2!3' .(!1*4.' A!.2' &;; .2*' >!&4.3' A2/' 2&1' ,;*1' .2*(*' *3!1*3' .2*3*' .2*' ,/;;/A!4>' 4&6*3'&(*' >!=*4'&6/4>' /.2*(3‖ >(3' 72!&;.*3' &;;&3' ;5. 3' 0(5.<3' !77?;5.?3' 2</4 4' .2*' /;1*3.' A/(D3' /,' &(.' .2*' !&4.3' &(*' (*7(*3*4.*1'!4' 206&4' ,/(6' &41'&(6*1' A!.2' 2&(4*33' &41' 37*&(3' 0.'!4' -/0(3*' /,' .!6*' .2*!(' &..(!<0.*' <*-&6*' .*((!,;-' &A,0;' ,&-*3' ;/4>' 2&4>!4>' 2&!(' &41' <*&(1' .2*' 3D!43' /,' A!;1' &4!6&;3' ,/(' >&(6*4.3'.(04D3' /,' .(**3' &41' -;0<3' ,/(' A*&7/43' 4' .2*' ;&.*3.'(*7(*3*4.&.!/43'<0.'4/.' <*,/(*' .2*!(' </1.*' 6!1' !4' .A/' 3-&;5' 34&D*3' !43.*&1' /,' ,**.' 83**' -0.9' 4' .2*' T 1 " ' /,

7' ! !.'./'(!>2.'/,' 0^S 0!(3$( ) ' ' B 8 /6&4'(*;!*,!4' ,..!-24' 03*46 9

(> 6<3' .2' >(&41*3.' (*7(*3*4.&.!/4' /,' .2*' 30<K*-.' !4' &4.!:0!.5' A*' ,!41' &' >(*&.' =&(!*.5'/,' /(63' 3/6*' :0!.*' 206&4' /.2*(3' A!.2' 34&D*3',**.' &41' 7/A*(,0;' A!4>3' /.2*(3' A!.2' 3.!;' </;1*(' -/6<!4&.!/43' /,' 32&7**' 3/6*' &(*' 4&D*1' 3/6*' -;/.2*1' A!.2' 3D!43' 3/6*',0;;5'&(6*1' &41'/.2*(3'3;!4>!4> . 4*3' # ' ?@ 0 ' $( )) ;11;&.1(`3' 2*' &.!4' 4&6*' ,/(' .2*' -/6<&.&4.3' A2/' ,/0>2.' *&-2' /.2*(' ,/(' ;!,*' /(' 1*&.2' 2.' .2*' 70<;!-' 32/A3' 2*5' ,!(3.' &77*&(' !4' /6*' !4' @?C " K &41' /4;5'&.' .2*' -*;*<(&.!/43' /,' 7(!=&.*' ,!!4*(&;3'/(' !4' >&6*3' >!=*4' !4' 6*6/(5' /,' &' 7(!=&.*' !41!.110&;' 4.*(.&!46*4.3' /,' .2!3' 41' A*(*' /,.*4' 7(/F =!1*1',/(' !4' A!;;3' <*' -03./6';!D*' /.2*(3' /,' .2*' 3&6*' D!41' 3**63' ./' 2&=*' -/6*' (/6' .(0(!&' 2*(*' !.' A&3' &' 30(=!=&;' /,' .2*' 206&4' 3&-(!,!-*3',/(6*(;'030&;'&.',04*(&;3' 2*3*' >;&1!&./(!&;' -/4.*3.3' 3//4' <*-&6*' &=*(5',&=/0(!.*',/(6' /,' 7/70;&(' *4.*(.&!4F 6*4.'&41'!4' .2*' ;&3.'-*4.0(5'/,' .2*(*70<;!-' A*(*2*;1'./'<*' &4' *0-*;;*4.' 6*&43',/' A!4"

4!4>' .2*' ,&=/0(' / ,' .2*' 7/70;&-*' &.' *;*-.!/43' 41**1' -03./6' &.' ;*4>.2' !6 7/3*1' &4' /<;!F >&.!/4' /4' 3/6*' 6&>!3.(&.*3' ,/(' !43.&4-*' /4' .2*' 3*1!;*3' ./' >!=*' >;&1!&./(!&;' >&6*3' /4' .2*!(' &330 6 7.!/4' /,' /,,!-*' &41' .2*5' A/0;1' .(5' ./' /0.<!1' *&-2' /.2*(' !4' .2*' 406<*(' /,' -/4.*41!4>' -/07;*3' &41' !4' >*4*(&;' *07*41!F .0(*' (/6' /6*' .2*' ,&32!/4' 3//4' 37(*&1' !4./' .2*' 7(/=!4-*3' &6 7&4!&' A&3' .2*' 7&(./,' .&;5' A2*(*' !.' 6/3.' 7(*=&!;*1' .' A&3' 4/.' 2/A*=*(' .!;;' .2*' .!6*' /,' /6!.!&4' .2&.' :0&*3./(3' 1*3!>4&.*' A*(*' (*>0;&(;5' -/6 F 7*;;*1' ./' >!=*' .2*' >(*&.' >;&1!&./(!&;' *OF 2!<!.!/43' A2!-2' /--07!*1' .*4' 1&53' !4' .2*' 6/4.2' /,' *-*6<*(' 4' .2*' *3.*(4' 6 F 7!(*' .2*5' 30(=!=*1' &.' ;*&3.' 1/A4' ./' .2*' <*F >!44!4>' /,' .2*' V.2' -*4.0(5'

2*5' A*(*' &.' ,!(3.' >!=*4' !4' .2*' ,/(06' <0.' &,.*(A&(13' >*4*(&;;5' !4' .2*' &672!F .2*&.(*3' 83*' & ' &41' !4' .2*' -!(-03' !,' .2*' *02!<!.!/4' A&3' ./' <*' /4' &' =*(5' ;&(>*' 3-&;*' 2*' >;&1!&./(3' A*(*' 3/6*.!6*3' -/41*64*1' -(!6!4&;3'' <0.' !.' 603.' <*' (*F 6*6<*(*1' .2&.' /(!>!4&;;5' /6&4' -!.!0*43' -/0;1' 4/.' <*' 3*4.*4-*1' ./' .2*' &(*4&' &41' !.' A&3' 4/.' .!' ';&.*(' .!6*3' .2&.' .2!3' 704!32 6*4.' A&3' *0.*41*1' ./' -(!6!4&;3' /,' ;/A' -/41!.!/4' ' /6*.!6*3' .2*5' A*(*' 7(!3/4*(3' /,' A&(' 3;&=*3' /(' =/;04.**(3' 41*(' .2*' 67!(*' !.' A&3' 4/.' 3/' 04-/6 6/4' *=*4' !4' .2*' 077*(' -;&33*3' ./' =/;04.**(' &3' &' >;&1!&./(' /6*F .!6*3' .2*' 3.*7' A&3' .2*' ;&3.' (*,0>*' /,' &' 0!4*1' 6&4'' 3/6*.!6*3' .2*' *67*(/(' A/0;1' ,/(-*' &' 6&4' ./' !.' 2*3*' =/;04.**(3' *(*' -&;;*1' 8_</041' /=*(9' ./' 1!3.!4F >0!32' .2*6' ,(/6' .2*' (*3.' .2*!(' 7&5' A&3' .*(6*1' " ' (//73' /,' >;&1!&F ./(3' A*(*' 3/6*.!6*3' /A4*1' <5' /6&43' !4' >//1'3/-!*.5' A2/' /,.*4' ./A&(13' .2*' *41' /,' B2*' (*70<;!-&4' &>*' *67;/5*1' .2*6' !4' 3.(**.'' ,!>2.3' &>&!43.' .2*!(' 7/;!.!-&;' /77/4*4.3' /6*.!6*3' .2*5' A*(*' .2*' 7(/7*(.5' /,' 37*-0;&./(3' A2/' /,.*4' -&((!*1' /4' &.' .2*' 3&6*' .!6*' .2*' 1!3(*70.&<;*' .(&1*' /,' &' ,*4-F !4>' 6&3.*(' &' " ' 2*3*' 6*4' A/0;1' 2!(*' /0.' /(' 3*;;' .2*!(' >;&1!&./(3' ./' 7*(3/43' A2/' A*(*' >!=!4>' .2*!(' 32/A3' /(' A/0;1' *02!<!.' .2*6' ,/(' 6/4*5' ./' .2*' 70<;!-' /4' .2*!(' /A4' &--/04.

2*' >;&1!&./(3' A*(*' .(&!4*1' !4' 37*-!&;' 3-2//;3' & ' 41*(' .2*' 67!(*' .2!4>3' A*4.'3/',&(' .2&.' .2*' *67*(/(3' D*7.' 3-2//;3' /,' .2*!(' /A4' 041*(' .2*' 307*(=!3!/4' /,' 2' ! 6 ' /,' *:0*3.(!&4' (&4D' ,.*(' /6!'' .!&43' .!6*' .2*(*' A*(*' ,/0(' /,' .2*3*' !4' /6*' ' <0!;1!4>' ,/(' .2!3' 70(7/3*' ;&(>*' *4/0>2' ,/(' &2041(*1';&1!&./(3' !3'7(*3*(=*1' !4' /67*!!' /' 3.(*4>.2*4' .2*!(' 603-;*3' .2*5' A*(*' 70.' /4' &' =*(5' 4/0(!32!4>' 1!*. =*(5'3.5;*' /,' ,!>2.!4>' 2&1' !.3' 37*-!&;' 7(/F ,*33/('# '/(' 1 '&41' .2*' >;&1!&./(' A&3' 030&;;5' !43.(0-.*1' /4;5' !4' /4*' 3.5;*' 2*' 4/=!-*' & '<*>&4' A!.2' ,*4-*"7(&-.!-*' &>&!43.' &' A//1*4' 3.&D*' &.' ,!(3.' A!.2' ;!>2.' A//1*4' &(63' <0.' &,.*(A&(13' A!.2' A*&7/43' /,' ,0;;' A*!>2.

,' &' 6&4' A*(*' !4.*41!4>' ./' >!=*' &' 32/A' /,' >;&1!&./(3' # " ' 1 ' 2*' &1=*(.!3*1' !.' <5' 4/.!-*3' # 1 ' 70.' 07' /4' .2*' &;;3' /,' 2/03*3' 406*(/03' -/7!*3' /,' .2*3*' <*!4>' &.' .2*' 3&6*' .!6*' A!1*;5' 1!3.(!<0.*1' 2*3*' 4/.!-*3' 3.&.*1' .2*' 1&.*' &41' /--&3!/4' /,' .2*' 32/A' .2*' 4&6*' /,' .2*' >!= (' # ' .2*' 406<*(' /,' 7&!(3' /,' >;&1!&./(3' &41' .2*' 1!,,*(*4.' D!413' /,' -/6<&.3' 2*' 7*(,/(6&4-*' <*>&4' A!.2' &' >&;&' 7(/-*33!/4' & ' /,' .2*' >;&1!&./(3' ./' .2*' &(*4&' &41' .2(/>2' !.' 2*4' -&6*' .2*' .*3.!4>' /,' .2*' A*&7/43' <5' .2*' A2/' .2/0>2' 2*' 6!>2.' <*' &' 7(!=&.*' !41!=!10&;' 2&1' .2*' (!>2.' /,' A*&(!4>' .2*' " 1" ' /,' &' 6363.(&.*' 10(!4>' .2*' 32/A' ' 7(*;!6!4&(5' 3D!(6!32' /(' ' A!.2' A//1*4' 3A/(13' &41' 1&(.3' 4*0.' .//D' 7;&-*' .! ' .2*' .(067*.3' 3/041*1' &41' .2*' 3*(!/03' ,!>2.!4>' <*>&4' 2!3' .//D' 7;&-*' ./' .2*' &--/67 !4!6*4.' /,' 603!-' !4' &' 37&-*' 6*&30(*1' /0.' <5' .2*' ,*4-!4>' 6&3.*(' 2*' >;&1!&./(3' 3/6*.!6*3',/0>2.' 4/.' !4' 7&!(3' <0.' !4' .(//73' 2*'".!6!1' A*(*' 1(!=*4' /4' A!.2' A2!73' &41' (*1"2/.' !(/43' ,' &' >;&1!&./(' A&3' A/041*1' !4' 3!4>;*' -/6<&.' 2*' (&!3*1' 2!3',/(*",!4>*(' ./' !67;/(*' .2*' 6*(-5' /,' .2*' 7*/7;*' A!.2' A2/6' &,.*(' .2*' ;&3.' 5*&(3' /,' .2*' (*70<;!-' .2*' >!=*(' /,' .2*' >&6*3' 030&;;5' ;*,.' .2*' 1*-!3!/4' 2*' 3!>4' /,' 6*(-5' # ' A&3' .2*' A&=!4>' /,' 2&41D*(-2!*,' .2*' -;*4-2*1' ,!3.' &41' 1/A4A&(1' .206<' !41!-&.*1' .2&.' .2*' -/6<&.' A&3' ./(' <*' ,/0>2.' /0.' .!;;' 1*&.2' /41*64*1' -(!6!4&;3' 2&1' 4/-2&4-*' /,' 6*(-5' 2*' 3;&!4' /(' 4*&(;5' 3;&!4' *(*' -&((!*1' /4' .2*' <!*(3' A2!-2' 3.//1' (*&15',/(' .2*6' ./' &' 7&(.!-0;&(1//(' # ' ; " ' !4./' &7;&-*' A2*(*' .2*5' A*(*' 3.(!77*1' 2*(*' !,' .2*5' 2&14/.' &-.0&;;5' *07!(*1' .2*5' A*(*' 70.' /1*&.2' 2*' =!-./(3' (*-*!=*1' 7&;63' A!.2' <(&4-2*3' &1/(4*1' A!.2' ,! *. ' 41*(' .2*' 67!(*' .2*5' 3/6*.!6*3' >/.' 7(*3*4.3' /,' 6/4*5' &3' A*;;' ,' &' >;&1!&./(' <5' (*7*&.*1' 7(//,3' /,' -;*=*(4*33' &41' <(&=*(5' 30--**1*1' !4' >&!4!4>' .2*' ,&=/0(' /,' .2*' 7*/7;*' 2*' A&3' &.' .2*' 70<;!-' (*:0*3.' 7(*3*4.*1' A!.2' &' D!41' /,' //1*4' (&7!*(' # I !' &3' &' ./D*4' .2&.' 2*' A&3' 4/A' ,(**' ,(/6' &;' 3*(=!-*' 4' .2!3' -&3*' 2*' A&3' -&;;*1' ' 2!3 ß $+'!56'&!'0!+&'*1'82 & #6'!'69#+3''+!+ *2+&' / +'!(' '98'

1!1 4/. 6&D 2!6 &4 &<3/;0.*;5,(** 6&4 <0. !, 2 -2/3 ./ ,!>2. &>&!4 2 1!1 3/ &3 &,(** 6&4 &41 -/0 &--/(1!4>;5 -;&!6 & 2!>2 (*6 04*(&.!/4 ;&1!&./(3 A*(&(6*1 !4 =&(!/03 3.5;*3 &3 .2 7&!(3 /, -/6<&.&4.3 A*(030&;;5 &.6/1 6. 0(!.;! .!! &6/ 6. A!.2 1!,,*(*4. &>&!43. .2 A&3 &(6*1 !4 &;;!-,&32!/4 A!.2 2*;6*. 3A/(1 &41 32!*;1 &41 4&6*1 &,.*(.2 ,!>0(* /, &,!32 # : A2!-2 &1/(4*1 2!3 2*;6*. 2 " /(&64!.* A&3 3/ -&;;*1 &,.*(2!3 &64!.* :0!76*4. 2!3 -/43!3.*1 /, &;&(>32!*;1 # &3;**=* /, ;*&.2*(/(6*.&; /4

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A*&7/43 2 A*&7/43 /, >;&1!&./(3 &41 4/.&<;5 .2*!(2*;6*.3 A*(:0!. 1!,,*(*4. !4 ,/(6 ,(/6 .2 &Q63 /, 3/;1!*(# ,!>! $9 ;&1!&./(3 *(* -;&33*1 &--/(1!4> ./ .2*!(*:0!76*4. 203 .2 E

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A&3 &(6*1 A!.2 &4*. A&3 <&(*2*&1*1 &41 2&1 4/.2!4> /4 <0. &32/(. .04!- &41 &>!(1;*" 2!3 ;*,. &(6 A&3 !4 &3;**=*" 2!3 &(63 A*(* &4*. # & .(!1*4. & " &41 &1&>>*(2 4*. 2 .(!*1 ./ .2(/A /=*(2!3 70(30!4> &1=*(3&(5 &41 ./ 1*37&.-2 2!6 A!.2 1&>>*(/(.(!1*4. !, 30--*33,0; 2 < /(70(30*(A&3 3/ -&;;*1 <*-&03 2 A&3 >*4*(&;;5 3*. ./ ,!>2. A!.2 .2 A2/ (*.!(*1 <*,/(* 2!6 8,!> @9 * A&3 &3 ;!>2.;5 *:0!77*1 &3 2!3 &1=*(3&(5 <0. &(6*1 A!.2 2*;6*. 3A/(1 &41 32!*;1 2 : 2 8,!> 9 A2/ A&3 &;3/ /,.*4 6&.-2*1 .2 (!>2. &(6 A!.2 &32/0;1*(7!*- #1 (!3!4> &</= .2 32/0;1*(&>!(1;* &>(*&= /4 .2 ;*,. //. &=!3/(*1 2*;6*. A!.2 -(*3. &41 7;06* &41 &32/(. 3A/(1 2 +(- /(2(&-!&4 A/(*;!D 2!3 -/04.(56*4 &36&;; (/041 32!*;1 & &41 &1&>>*(# -0(=*1 !4 .2 ,/(6 /, &3!-D;* /(<*4. &. (!>2. &4>;*3 4 /.2*((*37*-.3 2!3 *:0!76*4. &3 6/(* -/67;*.* .2&4 .2 &64!.*3 ,/(2 2&1 >(*&=*3 /4 </.2 ;*>3 2 . 2 (/(2*&=!;5 &(6*1 >;&1!&./(A/(* &<(*&3.7;&.* &3 A*;;* &3 =!3/(*1 2*;6*. &41 >(*&=*3 4 ;&.*(.!6*3 .2 7;&-*/, .2 A&3 3/6*.!6*3 .&D*4 <5 .2 ' A2/ A/(* .2 3&6 ;!>2. &(60/(<0. -&((!*1 & 32/(. 3A/(1 &41 & 4//3 #' A2!-2 2 .2(*A /=*(2!3 &1=*(F 3&(5 &41 70;;*1 2!6 ./ .2 >(/041 2 (/(6*4 A2/ ,/0>2. A!.2 .A/ 3A/(13 &(* &;3/ &77&(*4.;5 .2 7(/10-F .!/4 /, &;&.*(.!6* 2 # &' !!.!32 A&("-&(A!.2 .A/ 2/(3*3 ,/0>2. !4 -2&(!/.3 2 " (8,!> C ,/0>2. /4 2/(3*<&-D &(6*1 A!.2 36&;;

>=H ; 8 /6* &;&Q3/ /(!&9

(/041' 32!*;1' &41' 37*&(' & ' &41' &' =!3/(*1' 2*;6*.' A!.2/0.' *5*2/;*3' &41' -2&(>*1'*&-2'/.2*('!4'.2*'1&(D

8C9)

8 (/6'.2*' 672!.2*&.(*' /67*!!9

2*(*'&(*'6&45'(*7(*3*4.&.!/43'/,'>;&1!&F./(!&;' -/6<&.3' !4' A/(D3' /,' &(.' .2*' 6/3.' -/67(*2*43!=*' /,'A2!-2'!3'&';&(>*'<&3"(1!*,' !4' /67*!!' f =*(<*-D3' , ' ,!>3' $N?"$$@" /(' -2(*!<*(3' (' '000' e 3' @"R g

; 1;03' 2*' /6&4' 6!;!.&(5' %! ')' A2!-2' A&3' &..&-2*1' ./' &' 32/0;1*("3.(&7' (/041'.2*'4*-D' /(' ./' .2*' >!(1;*' (/041'.2*' A&!3.' 2*' -/66/4' 3/;1!*(3' A/(*' !.' /4' .2*'(!>2.'3!1*" .2*' /,,!-*(3'2&=!4>'4/'32!*;1' ;!D*' .2*' -/66/4' 3/;1!*(3'/4' .2*' ;*,.' .' A&3' &'32/(.'32&(7'.A/"*1>*1'A*&7/4'03*1' 6/(*',/(' .2(03.!4>' .2&4' -0..!4>' 4' .2*' (*70<;!-&4' 7*(!/1' !.' A&3' /4;5' A/(4' <5' 6&>!3.(&.*3'A2*4'&-.!4>'&3'6!;!.&(5'/,,!-*(3" <0.'041*(' .2*' 67!(*' !.' A&3' .2*' *6<;*6' /,' !67*(!&;' 7/A*(' &41'!4' -/43*:0*4-*' /4*' /,' .2*' " 1" ' /,' .2*' *67*(/(' &41' .2*' -/6F 6&41*(3' 4/6!4&.*1' <5' 2!6' ,.*(' .2*' !4.(/10-.!/4' /,' .2*' 3A/(1'!43.*&1' /,' .2*' &0*' !4' *0*-0.!/43' .2*' ' 1 ' A&3' .2*' .*(6'*07(*33!4>' .2*' ,0;;' -(!6!4&;' K0(!31!-F.!/4' -/4,*((*1' <5' .2*' *67*(/(' /4' .2*' 7(/F =!4-!&;' >/=*(4/(3

;&33' &6 ' (: ' &.' ' ;&33' A&3' ,/(' &' ;/4>' .!6*' 7(/-0(*1' <5' .2*' (**D3' &41' /6&43' ,(/6' 2/*4!-!&' &41' >57.' A2*(*' !.3' 6&40,&-.0(*' 2&1' <**4' -&((!*1' /4' 3!4-*' =*(5' &4-!*4.' .!6*3' &41' .2*' &(.' 2&1' (*&-2*1' &4' 04-/66/4' 1*>(**' /,'7*(,*-.!/4' 2*' &4-!*4.3'7(/10-*1';&33"' A/(D' /,' >(*&.' <*&0.5' </.2' !4' ,/(6' &41' -/;/0(3' 4' ;&.*(' .!6*3' !.' A&3' .2*' 6&40F ,&-.0(*(3' /,' ;*0&41(!&' A2/3*' (*70.&.!/4' 3.//1' .2*' 2!>2*3.' 2*' 6&406-.0(*(3' -&((!*1'/4'1/A4'./' .2*' .!6*3' /,' .2*' ;&.*(' 67!(*' &' -/43!1*(&<;*' *07/(.' .(&1*' !4' -/;/0(*1' <;/A4">;&33' &41' 6/3&!-3' .' !3' 04-*(.&!4'A2*.2*(' .2*' (**D3' 6&40,&-.0(*1' .2*!(' /A4';&33' !4' 6/(*' &4-!*4.' .!6*3' .' A&3' -*(.&!4;5' &' =*(5' -/3.;5' &(.!-;*' 1/A4' ./' .2*' .!6*' /,' .2*' *;/7/44*3!&4' &(' &41' /4;5' -&6*' !4./'>*4*(&;'03*' &.' &;&.*' 7*(!/1

4' .&;5'.2*' 6&40,&-.0(*' /,' >;&33' <*>&4' &.'.2*-/66*4-*6*4.'/,'.2*'!67*(!&;'7*(!/1' ,!(3.'!4' &67&4!&' &41'&,.*(A&(13' !4' /6*' A2*(*' .2*5' A*(*' &6<!.!/03' /,' 30(7&33!4>' .2*' &(./,' ;*0&41(!&' (/6' .&;5'!.'37(*&1' ./' &0;' &41' 7&!4' &41' .2*' 6/(*' 1!3.&4.' 7(/=!4-*3' &41' <*,/(*' ;/4>' >;&33' -073' 3&0-*(3' &41' </..;*3' <*-&6*' &4' /(1!4&(5' 7&(.'/,' 2/03*2/;1',0(4!.0(*' 2*' (*6&!43' 1!3-/=*(*1' &.' *(-.!;&4*06' &41' /67*!!' 32/A'.2&.'>;&33'A!41/A3'A*(*'4/.'0!4D4/A4' !4' .2*' !67*(!&;' &>*' 2*' &4-!*4.3' A*(*' ,&6!;!&(' A!.2' .2*' 6&40,&-.0(*' /,' 70(*' A2!.*' .(&437&(*4.' -(53.&;' >;&33' A2!-2' A&3' 60-2' !4' (*:0*3.' &3' A*;;' &3' A!.2' .2*' &(./,' -/;/0(!4>' >;&33' !4' *=*(5' .!4.' 2*5' -/0;1' !6!.&.*' *=*(5'D!41' /,' 3./4*' 7(/10-*' =&(5!4>'7(!36&.!-' .!4.3' &41' 37(*&1';&5*(3' /,'1!,!*(*4.' -/;/0(3' 07/4' *&-2' /.2*(' 2*' &(./,' -0..!4>' &41'7/;!32!4>'>;&33'A&3'=*(5' &1=&4-*1' (/6' <!.3' /,' >;&33' -0.' &41' 7/;!32*1'A*(*' 6&1*'>(*&.'406<*(3'/,'6/-D' 7*&(;3'/(' 6/-D'7(*-!/03'3./4*3' &41'7&3.*3' A2!-2'A*(*'A/(4'!43.*&1'/,'(*&;'3./4*3' !4' (!4>3' -0.' !4' !4.&>;!/' /(' (*;!*,' 2*' 6/3.' !67/(.&4.'7(/10-.!/43'/,'&(.'A*(*ⅈ 8$9' .2*' 4' .2*3*' -073' .2*' /0.*(' 3!1*'A&3' 6&1*' /,' ,!;!>(**'A/(D'-0.' /0.' /,' .2*' 2&(1' 6&33' 2*' /0.*(' 4*.A/(D'A&3' /,' &' 1!,,*(*4.' -/;/0(' ,(/6' .2*' >(/041' A!.2' A2!-2'!.'A&3' -/44*-.*1'<5'4/.2!4>'<0.'3;*4F 1*(';&33&.&;D3' 8@9' 2*'=*33*;3'A2!-2'*02!F <!.'(*;!*,3'/,'A2!.*' /7&:0*' >;&33' /4' &'1&(D' &41'.(&437&(*4.'>(/041'!D*' .2*' -*;*<(&.*1' /(.;&41' &3*'83**@ & ' ;&33'.&<;*.3'!4F .*41*1',/('60(&;'1*-/(&.!/4'A*(*'3/6*.!6*3' /(4&6*4.*1'A!.2'(*;!*,3'/,'.2!3'D!41

;&4-*' &;3/'-&;;*1' (*03&' 2& 1&0>2.*(' /,' (V?4'D!4>'/,' /(!4.2'A2/' A&3' <*.(./.2*1'./' &3/4' &41' 3;&!4' /0.' /,' K*&;/0B'<5' *1*&' <5' 6*&43' /,' &' 7/!3/4*1' (/<*' # ' -/4-;03!/49

;&0-43' &6 ' 8$9' ' >/1' /,' .2*' 3*&' .2*(*,/(*' /66/4;5'-&;;*1', " ' A2/' 7/33*33*1' .2*' >!,' /,' 7(/72*-5' (!>!F 4&;;5'&',!32*(6&4'&41'1!=*(' /,' 4.2*1/4'!4' -*/.;&'2*' /4-*' -2&4-*1' ./' *&.' /,' &' 2*(<' A2!-2'2*' 2&1' 3**4',!32',**1' /4' ./' (*,(*32' .2*63*;=*3'A2*4'.!(*1' .1(/=*'2!6'6&1' &41'2*' .2(*A'2!63*;,'!4./' .2*' 3*&' /4'A2!-2' 2*' A&3'-2&4>*1'!4./' &' 3*&">/1'<5' -> 403' &41' *.253' --/(1!4>' ./' &4/.2*(' 3./(5' 2*' .2(*A'2!63*;,'!4./' .2*' 3*&' /(';/=*' /,' .2*' 5/04>' 3*&">/1' ;,-*(.*3'A!.2' A2/6' 2*' A&3' 3/6*.!6*3' !1*4.!,!*1' *' A&3' &;3/' 3&!1'./' 2&=*'<**4'.2*' <0!;1*('&41'.2*' 7!;/.' /,' .2*' 1 '&41'./' 2&=*'<**4'-2&4>*1'!4./' &' >/1' !4' ' A/41*(,0;'A&5'&,.*(' .2*' <&..;*' /,' .2*' (>/4&0.3' A!.2' .2*' 5((2*4!&43"

-/(1!4>' ./' -/66/4' <;!*,' 2*' =!3!.*1' &;' .2*' -/&3.3' &41' !3;&413' /,' .2*' *1!.*((&4*&4' *=*(5' 5*&(' 7(/72*35!4>' &41' ;&6*4.!4>' .2&.' 2*' -/0;1' 4/.' 1!*' *'&41'.2*' *(*!1*3' A!.2' 2!6' A*(*' 3&!1'./' 2&=*' 0..*(*1' /(&-;*3' !4' *;?3' 2*' 3./(!*3' 2&1' 60-2' ./' .*:;' /,' 2!3' ;/=*3' 4/.&<;5' /,' .2/3*' /,' -5;D' &41' !(-*' *' A&3' (*7(*3*4.*1' !4' A/(D3' /,' &(.' &3' &4' /;1' 6&4' A!.2' &' ,!32 3' .&!;' A!.2' 3*&' <;0*' 3-&;*3' ;/4>' 2&!(' &41' <*&(1'&41'<(*&3.' -/=*(*1' A!.2' 3*& A**1' &41' 32*;;3

8@9' /4' /,' .2*' (*.&4' K4/3' &41' &3;'* 72 *' 2*4' 7;&5!4>' !4' 2!3' !4,&4-5' 2*' ,*:; !4./' &' K&('/,' 2/4*5' &41' A&3' 3.!,;*1' !3' ,&.2*(' &,.*(' &' &!4' 3*&(-2' ,/(' 2!6' A&3' ./;1' <5' .2*' 0(*. 3' .2&.' /4;5' /4*' 7*(3/4' -/0;1',!41'.2*' -2!;1' &41' <(!4>' 2!6' ./' ;!,*' &>&!4' 2&.' A&3' .2*' 6&4' A2/' 32/0;1' 1*=!3*' &' 30!.&<;*' -/67&(!3/4' ,/,' &' -/A' !4' 2!3' 2*(1' A2!-2' <*-&6*' A2!.*' (*1' &41' <;&-D' &;.*(4&.*;5' &.' !4.*(=&;3' /,',/0(' 2/0(3' 2*' 3**(' 3;5!103' /,' (>/3' .2*' >(*&.">(&413/4' /,' *;&670' *' (*&1' .2*' (!11;*' <5' -/6' 7&(!4>' .2*' -/A' ./' &' <;&-D<*((5' /(' 60;<*((5' A2!-2' !3' A2!.*' (*1' &41' <;&-D' &.' =&(!/03' 3.B*3' /,' !.3' >(/A.2' 2*' -/(73*' /,' .2*' -2!' '2*',/041'<5'&!1'/,'.2*',;!>2.'/,'&'<!(1' (/,*33!4>' 2!63*:,' 04&<;*' ./' (*=!=*' .2*' -/(73*' !4/3' !4' &4>*(' /(1*(*1' 2!6' ./' <*' 320.' 07' A!.2' !.' !4' &' =&0;.' ' 34&D*' -(*7.' 07' ./' A*' -/(73*' &41' /;5!103' D!;;*1' !.' 2*' .2*4' 3&A' &4/.2*(' 34&D*' (*=!=*' !.3' 1*&1' ,*;;/A' <5' ;&5!4>' &' 2*(<' 07/4' !.' !.2' .2!3' 2*(<' 2*' <(/0>2.' .2*' 1*&1' -2!;1' ./' ;!,*' &>&!4' !4&;;5' !4/3' -/67*;;*1' 2!6' ./' .*&-2' .2*' </5' .2*' &(.' /,' 7(/72*-5' 0.' /4' 2!3' (*.0(4' ./' (>/3' /;5!103' 6&1*' .2*' -2!;1' 37!.' !4./' 2!3' 6/0.2' A2!-2' -&03*1' 2!6' ./',/(>*.' &;' .2&.' 2*' 2&1';*&(4*1

8 9' ^!4>'/,' /(!4.2' 3/4' /,' !357203' &41',&.2*(' /,' *:;>(/72/4.*3' .' .2*' ,04*(&;' >&6*3' /,' ?$!&3' !4' ;/-03' 2*' A&3' .2(/A4' &41' ./(4' ./' 7!*-*3' <5' 2!3' /A4' 2/(3*3' A2!-2' 72(1 .*' !4' 2*(' A(&.2' 2&1' 1(!=*4' 6&1' !3' >2/3.' A&3' 3&!1' ./' &77*&(' ./' .2*' 2/(3*3' (&-!4>' &.' .2*' 3.26!&4' >&6*3' &41' .*((!,5' .2*6' *' A&3' &--/(1!4>;5' A/(32!77*1' /4' .2*' 3.26 03' 041*(' .2*' 4&6*' /,' &(&0!7713' (' *((!,!*(' /,' /(3*3

8C9' (*&.">(&413/4' /,' 8 9' >(&413/4' /,' *:;*(/72/4.*3' &41' 3/4' /,' !77V;V-203' 7(!4-*' /,' .2*' 5-!&43' !.2' 2!3' D!436&4' &(7>1/4' 2*' A&3' ;*&1*(' /,' .2*' 5-!&4' &00!;!&(!*3' /,' (!&6' &41' 6*.' ! 6*1*3' !4' .2*' / ' 2*' .A' -2!*,.&!43' (*-/>4!3*1' *&-2' /.2*(' &3' ,(!*413' &41' >0*3.3' /,' .2*!(' >(&41J.2*(' *:;*(/72/4.*3' &41' 8 4*03' &'

&41' *0-2&4>*1' &(6/0(' ;&0-03' 7&(.!4>' A!.2' <!3' >/;1*4' 30!.' ,/(' .2*' <(&Q*4' &(63' /,' !/6*1&3' 2*4' .2*' (**D' *4.(*4-2F 6*4.3' A*(*' 3./(6*1' ;&0-03' 2&1' (*&-2*1' .2*' ./'/,' .2*' A&;' A2*4' 2*' A&3' 70.' ./',!>2.' <5' &4' &(//A' 32/.' <5' *0-*(' *' 7(/.*-.*1' *-./(' A2*4' A/041*1' <5' -2!;:*3" A!.2' 7/;;/3' &!1' 2*' &=*4>*1' &(7*1/4' &41' .//D' &' 7(/6!4*4.' 7&(.' !4' .2*' 3.(0>>;*' ,/(' .2*' </15' /,' &.(/-;43' *' ,!4&;;5' 6*.' 2!3' 1*&.2' &.' .2*' 2&41' /,' K&O

!5/4' 4' .2*4!&4' &(.!3.' A2/' 7(/F <&<;5' ,;/0(!32*1' !4' .2*' $3.' -*4.0(5' -' *' *0*-0.*1' .2*' ,&6/03' -/;/33&;' 3.&.0*' /,' .2*' ' 4/A' &.' &K1*3' 83**' /(

4/6/4' 2*' (BD' .*(6' ,/(' .2*' 304F 1!&;' .2*' 03*' /,' A2!-2' !4' (**-*' !3' 3&!1' ./' 1&.*' ,(/6' 4&O!6*4*3' /(' 4&O!6&41*(' 8VNN' + 2*',!(3.'3041!&;'03*1'!4' /6*' # 'A&3' <(/0>2.' .2*(*' !4' @?' ' ' ,(/6' *.&4&!4' !-!;5' &41' 3*.' 47' !4' 70<;!-' .' A&3' 4/.' 2/A*=*(' .!;;' $?C' ' .2&.' /4*' &1&7.*1' ./' .2*' ;&.!.01*' /,' /6*' A&3' -/4F 3.(0-.*1' (/6' .2&.' .!6*' .2*' 03*' /,' 304F 1!&;3' <*-&6*' 3/' -/66/4' .2(/0>2/0.' .2*' *67!(*' .2&.' !.' A&3' &3306*1' !4' ;*>!3;&.!/4' 10(!4>' .2*' !67*(!&;' 7*(!/1' &41' &;' 7(!=&.*' <03!4*33' A&3' (*>0;&.*1' <5' .2*' 2/0(3' 6&(D*1' /4' .2*' 1!&;

/;1' &41' =/(5' (.'/,' /(D!4>' !4' 2*' (**D3' 2&1' &' 7*-0;!&(' 7(/-*33' /,' 6&D!4>' 3.&.0*3' /,' .2*!(' >/13' !4' A2!-2' .2*' 04-;/.2*1' 7&(.3' A*(*' /,' !=/(5' .2*' 2&!(' &41' (&!6*4.' /,' >/;1' .' A&3' &77;!*1' *0-;03!=*;5' ./' -/;/33&;' 3.&.0*3' &41' A&3' !4' 37*-!&;=/>0*' !4' .2*' V.2' -*4.0(5' ' A2*4' 2!1!&3' 32/A*1' 2!63*;,' &4' 04(!=&;;*1' 6&3.*(' !4' .2*' &(.' ' -;&5' 6/1*;' A&3' 3&A4' !2./' 7!*-*3' !4' -/((*37/41*4-*' A!.2' A2!-2' .2*' 7&(.3' /,' .2*' 3.&.0*' A*(*' -/67/3*1' /,' !=/(5' 7;&.*3' 6&1*' <5' &' 7(/-*33' 84/A' ;/3.9' /,' 3/,.*4!4>' &41' *0.*41!4>' .2*' 6&.*(!&;' 2!3' A&3' 1/4*' <5' 3&A!4>' 3-(&7!4>' &41',!;!4>' 2*' 3*7&(&.*' 7!*-*3' A*(*' .2*4',&3.*4*1' A!.2' !3!4>;&33' /4' &' 3/;!1' 40-;*03' /,' -;&5' >5730 6' /(1(!*1' 07' A//1' 2*' 4*0.' 3.*7' A&3' ./' A/(D' /=*(' .2*' 30(,&-*' /,' .2*' !=/(5' 7;&.*3' ./' 36//.2' /=*(' !4*-K0&;!.!*3' &41' 3/' !4&;;5' .2*' >/;1' 7/(.!/43' A2!-2' 2&1' <**4' ,!4!32*1' 3*7&(&.*;5' A*(*' ;&!1' /4' 7*-!&;' -&(*' A&3' (*:0!(*1' ./' D**7' .2*' 7!*-*3' /,' !=/(5' />*.2*(' !;' A&3' 60-2' 03*1' ./' D**7' .2*' 6' !4' &' 3.&.*' /,' K4*3*(=&.!/4' 2*' 3.&.0*' /,' L*03' <5' 2!1!&3' &.' ;56 7!&' A&3' ,/041' ,!,.5' /(' 3!0.5' 5*&(3' &,.*(' !.' A&3' ,!4!32*1' ./' <*' !4' 3/' 1!3;/-&.*1' &' 3.&.*' .2&.' &' -/6F 7;*.*' (*3./(&.!/4' A&3' 4*-*33&(5' f &03&4!&3' =;;`$N'' != $`?g

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/(>;&3' 8$9' ' (**D' 3/72!3.' &41' (2*./(!-!&4' &' 4&.!=*' /,' */4.!4!' !4' !-!;5' 4' C@U' ' A2*'4' &;(*&15' &1=&4-*1' !4' 5*&(3' 2*' -&6*' ./' .2*'43' /4' &4' *6<&335' ,(/6' 2!3' 4&.!=*' -!.5' ./' !67;/(*' &!1' &>&!43.' .2*' 5(&-03&43' 2*' ,!4!32*1' 3.5;*' /,' 2!3' 37*&D!4>' *0-!.*1' >*4*(&;' &16!(&.!/4' *' A&3' 30--*33,0;' !4' .2*' /<*-.' /,' 2!3' 6!33!/4' &41' !66*1!&.*;5' (*.0(4*1' 2/6*' 0.' 2*' 3//4'-&6*' <&-D' ./' .2*43' A2!-2' 2*' 6&1*' 2!3' 2*&1:0&(.*(3'.(&=*;;!4>'.2(/0>2' (**-*' ;!D*' .2*' /.2*(' /72!3.3' &41' A!44!4>' 60-2' 7/70;&(!.5' &41' *6/;06*4.' ,(/6' &' ;&(>*' 406<*(' /,' 1!3-!7;*3' *' 30(=!=*1' /-(&.*3' A2/' 1!*1' !4' TT' &41' *41*1' 2!3' 1&53' &.' &(!33&' !4' 2*33&;5' !4' 2!3' 2041(*1.2' 5*&(

!3' 72!;/3/725' A&3' &' 4!2!;!3.!-' 353.*6' A2!-2' 2*' 306 6*1' 07' !4' .2(**' 7(/7/3!.!/43' 8&9' 4/.2!4>' *0!3.3" &' !,' &45.2!4>' *0!3.*1' !.' -/0;1' 4/.' <*' D4/A4" 8-9' 1!1' &45.2!4>' *0!3.' &41' -/0;1' !.' <*' D4/A4' !.' -/0;1' 4/.' <*' -/6 604!-&.*1' *' 1*-;!4*1' ./' &3306*' .2*' 4&6*' /,' /72!3.' 7(*,*((!4>' .2&.' /,' (2*./(!-!&4' *' 7(/,*33*1' ./' .*&-2' 4/.' =!(.0*' <0.' .2*' &(.' /,' 7*(30&3!/4" !4' /.2*(' A/(13' ./' >!=*' 2!3' 1!3-!7;*3' 30-2' &<3/;0.*' (*&1!4*33' !4' 37*&D!4>' .2&.' .2*5' 32/0;1' <*' &<;*' ./-/4=!4-*' .2*!(' 2*&(*(3' !41*7*41*4.;5' /,' &45' D4/A;*1>*' /,' .2*' 30<*-.' *' 1!1' 4/.' ,/041' 2!3' !43.(0-.!/4' /4' &45' 1*,!4!.*' (2*./(!-&;' 353.*6' <0.' >&=*' 2!3' 707!;3' 3.&41&(1' 7&33&>*3' /,' ;!.*(&.0(*' ./' ;*&(4' <5' &(.' &41' !66!.&.*' 7(&-.!3!4>' .2*6' !4' .2*' &77;!-&.!/4' /,' (2*./(!-&;' ,!>0(*3' *' &7F 7*&(*1' !4' 7*(3/4' /4' =&(!/03' /--&3!/43' &.' *;72!' ;567!&' &41' .2*43' A!.2' 6/1*;' 37**-2*3' A2!-2' 2*' &,.*(A&(133'70<;!32*1' ,' 603.' 4/.' <*' ,/(>/..*4' .2&.' !.' A&3' /(>;&3' A2/' .(&437;&4.*1' (2*./(!-' ./' (**-*' !.3' 7(/7*(' 3/!;' &41' A2/' 2*;7*1' ./' 1!,,03*' .2*' ..!-' 1!&;*-.' &3' .2*' ;!.*(&(5' ;&4>0&>*' /,' 7(/3/' A/' 2!>2;5' (2*./(!-&;' *0*(-!3*3' .2*' >*40!4*4*33' /,' A2!-2' !3' 1/0<.,0;' 2&=*' -/6*' 1/A4' ./' 03' 041*(' 2!3' 4&6*[.2*' 9" ' ' "' &41' .2*' 5" ' ' ' ,' &>&!43.' .2*' -2&(>*' /,' 2!>2' .(*&3/4'<(/0>2.' &>&!43.' 2!6'<5' 1533*03

8@9' ' (**D' (2*./(!-!&4' /,' .2*' 3*-/41' 2&;,' /,' .2*' $3.' -*4.0(5' ' *' A&3' .0./(' ./' .2*' 5/04>*(' !-*(/' &41' A&3' .2*' &0.2/(' /,' &' .(*&.!3*' /4' .2*' ,!>0(*3' /,' 37**-2' A2!-2' !3' !4' 7&(.' 7(*3*(=*1' !4' &' &.!4' 7&(&72(&3*' <5' 0.;;!03' .!703' 8R** 0 ! !03' 0703' 9 /(>*' 8 /(>/439' /6*(' 6&D*3' 6*4.!/4' /,' .2*' .*((!<;*' 2*&1' /,' .2*' /(>/4' &' ,/(F 6!1&<;*' 6/43.*(' 2!3' 2*&1' !3' &' .*(((' !4' &1*3' &41' !4' .2*' &*>!3' /(' <(*&3.7;&.*' /,' L*03' *3!/1' 37*&D3' /,' .2(**' /(>/43" .2*4/' 8.2*' 6!>2.59' 0(5&;*' 8.2*' A!1*" A&41*(!4>9' &41' 103&'8.2*':0**49' 2*5' &(*' .2*' 1&0>2.*(3' /,' .2*' &>*1' 3*&">/1' 2/(-53' &41' ^*./' &41' 3!3.*(3' /,' .2*' (&!&*' 83**' @ 9' 2*5' 1A*;;' /4' .2*' ,&(.2*3.' 32/(*' /,' -*&4' !4' .2*' 4*!>2</0(2//1' /,' !>2.' &41' /,' .2*' *37 (!1*3' 2*5' &(*' &A,0;' <*!4>3' A!.2' 2&!(' &41' >!(1;*3' /,' 34&D*3' A2/3*' ;//D' .0(43' .2*' <*2/;1*(' ./' 3./4*' 2*5' &(*' &;3/' /,.*4' (*7(*3*4.*1' A!.2' >/;1*4' A!4>3' <(&Q*4' -;&A3' &41' *4/(6/03' .**.2' *103&' !3' 6/(.&;' <0.' .2*' /.2*(' .A/' !66/(.&;' 2*4' *(3*03' -0.3' /,,' *103&'3' 2*&1' 2(B3&/(' &41' .2*' A!4>*1' 2/(3*' *>J303' A!.2' A2/6' 32*' A&3' A!.2' -2!;1' <5' /3*!1/4' 7(!4>' ,/(.2' ,(/6' .2*' 3.(*&6!4>' <;//1' 2*' 2*&1' A&3' >!=*4' <5' *(3*03' ./' .2*4*' A2/' 3*.' !.' !4' 2*(' 32!*;1' *(&-;*3' (*-*!=*1' &' ;/-D' /,' .2*' 2&!(',(/6' .2*4*' &3' &' 7(*3*4.' 2*4' *4F 1*&=/0(!4>'./' 7*(30&1*' 72 ;03' /,' *>*&' ./' .&D*' 7&(.' !4' 2!3' *07*1!.!/4' &>&!43.' !77?-??4' /,' 7&(.&(.2*' D!4>' (*7(*3*4.*1' .2&.' 2*' ,*&(*1' &4' &..&-D' ,(/6' 2!3' *4*6!*3' .2*' (>!=*3' !4' *(&-;*3'&<3*4-*' *(&-;*3' &--/(1!4>;5' >&=*' ./' .?(?7*' .2*' 1&0>2.*(' /,' *72&;03' .2*' ;/-D' /,' *103&' 3' 2&!(' !4' &' <(&Q*4' 0(4' <!11!4>' 2*(' !4' -&3*' .2*' *4*65' &<77(/&-2*1' ./' &=*(.' 2*(' 2*&1' &41' 2/;1' !.' .2(**' .!6*3' /=*(' .2*' A&;;3' ,/(' .2*' 6*(*' &37*-.' /,' !.' A/0;1' .0(4' .2*' *4*65' ./' ,;!>2.' 4' -/43*:0*4-*' /,' .2*' <*;!*,' !4' .2!3' 7/A*(' /,' .2*' (/>/43' 2*&1' (' 6 1 " "' ./' 7&(&;53*' &41' .*((!,5' &4' *4*65' .2*' (**D3' -&(=*1' !6&>*3' /,' !.' !4' !.3' 6/3.' .*((!,5!4>' ,/(63' 4/.' /0;5' /4' &(6/0(' /,' &;,' 3/(.3

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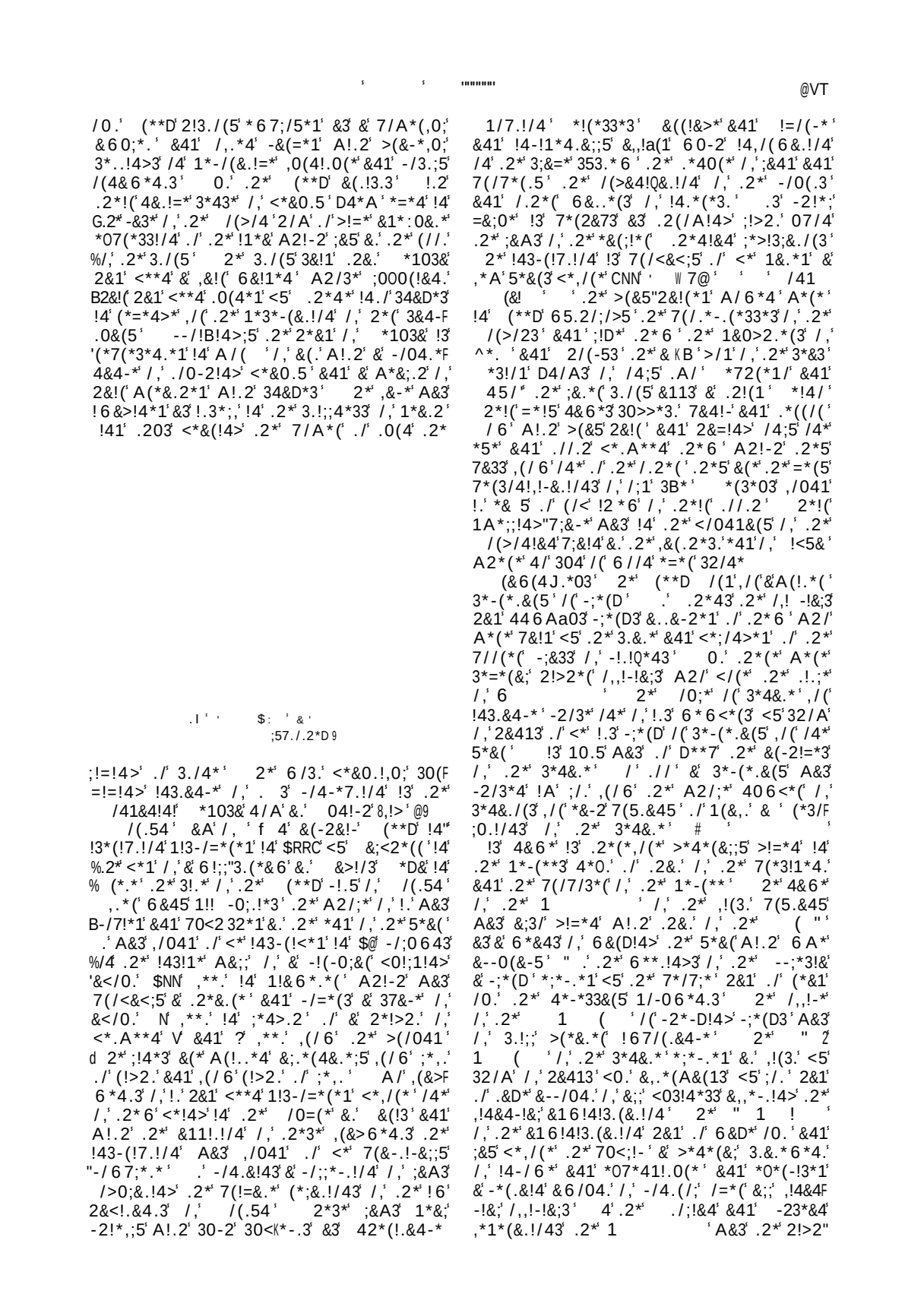

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(*=!=*1 !4.*(*3. !4 .2* /;1*(;!.*(&.0(* 2!3 7*(!/1 !3 1!3.!4>0!32*1 <5 .2* 4&6*3 /, 0*./4!03 *(*4.!,;3 -&0(03 &41 0;03 XV*;;;03 0*./4!03 &37!(*1 ./ .2* 6&45"# 3!1*1 ;*&(4!4> /, &((/ &41 ;!D* &((/ .=&3 60-2 :0/.*1 <5 ;&.*(A(!.*(3 ,.*(.2!3 .!6* .2* >(&666!&43 .*41 6/(* &41 6/(* ./ -/4,!4* .2*!(3.01!*3 ./ 7/!4.3 /, ;&4>0&>* ./ &<&41/4 !41*7*41*4. (*3*&(-2 &41 ./ 1*7*41 /4 .2* ;&</0(3 /, .2*!(7(*1*-*33/(3 2* -2!*, =&;0* /, .2*!(A(!.!4>3 -/43!3.3 !4 .2* ,&-. .2&. .2*5 2&=* 7(*3*(=*1 3/6* ,(&>6*4.3 /, &4-!*4. ;*&(4!4> 2*!(*0.(&-.3 &(* 030&;;5 6&1* ;/(3-2//; 70(7/3*3 &41 70. ./>*.2*(!4 - /(6&40&;3 /, &--!1*4-* /(.2/>(&725 7(/3/15 &41 6*.(* 0-2 &(* .2* </!D3 /, ' J(03 =!-./(!4 /4&.03 *(=;03 2&(!" 3;03 !/6*1*3 A2/ &(* &;;&33!>4*1 ./ .2* C.2 -*4.0(5 4 03 &(-*;;03 <*;/4>3 ./ .2* 3&6* 7*(!/1 *! 3 .2* &0.2/(/, &A/(D 8@a* $ " " 5 "" A2!-2 .2/0>2 1(*&(5&41 04-(!.!-&; !3 !4=&;0&<;* ;/(.2* 3./(*3 /, /;1 &.!4 A2!-2 !. 2&3 7(*3*(=*1 2* ?.2 -*4.0(5 !3 6&(D*1 <5 .2* 4&6* /, (!3-!&4 *! 6&5 ,0(.2*(6/.!-* ,!(*4.!&403 &0(03 .2* &0.2/(/, & =*(3!,!*1 .(*&.!3* /4 6*.(* !4 .2* (1 -*4.0(5" &-(< 03 A2/ !4 .2* V.2 -*4F .0(5 -/67/3*1 & 6!3-*;;&45 /, &4.!:0!.!*3 -&;;*1 * &41 3!1/(* !32/7 /, *=!;;* !4 .2* U.2 -*4.0(5 A2/3* 1 " !3 .2* ;&3. A/(D (/041*1 /4 & (*&; 3.015 /, &4-!*4.&0.2/" K!.!*3 (&66J.;-03 8 (6 2) (O&(46J.!3.*3) ((&4!43 ;-;4;T4 !R" /6&4 2!3./(!&4 A2/ 7(/<&<;5 ,;/0(!32*1 !4 .2* @41 -*4.0(5 * A&3 .2* &0.2/(/, & A/(D -/67!;*1 !4 2* 3.5;* /, " " *41!4> A!.2 .2* 1*&.2 /, 63&(/6* -/4" M !1*(&<* ,(&>6*4.3 2&=* <**4 ,/041 !4 6/1*6 .!6*3 /, </!D3 %@R" ?-/=*(!4> .2* 2!3./(5 /, .2* 5*&(3 $? "UR (3) (' ((&.!3/(6 ' O /(.!-/ , F &33&>* &(6<&.23 /;1<&.23 *&(.&!(-&3* ./;&-/4.-05f /.2&.2 . &;; ,B*5 -43 /6&47/*./-/4.*67/(&(5 (*33!4>"(//63 A!.2 =!1 * A&3 .2* &0.2/(/, & 7/*6/4 .2* -2&3*#$:" 1 " /, A2!-2 /4;5 .2* ,!(3.</!D 2&3 <**4 7(*3*(=*1 &41 .2&. 60.!;&.*1 ./A&(13 .2* -;/3* 2* ,(&>6*4. -/43!3.3 /, 3/6* V V 2*0&6*.*(3 !4 A2!-2 .2* 30<*-.!3 .(*&.*1 B &(^ 3!!(!, E !(3" 8/4!&4 " L!! 7!CN9 A!.2 60-2 .&;*4.!4 &4 *=*4 &41 -;&33!-&; 3.5;* <0. A!.2 -/43!1*(&<;* 1(54*33 !4 6&45 7&(.3 (&..!03 2&3 <**4 3.5;*1 " <*-&03* !4 /4* 7&33&>* 2* &7F 7&(*4.;5 !41!-&.*3 .2&. .2* &;!3-! A*(* 2!3 -/04.(56*4 (/6&" 2* 6*&30(!4> !43.(&6*4. 03*1 <5 ;&41 30(=*5/(3 A2/ A*(* -&;;*1 6 2 ,(/6!. / ! &! 03.J.;/ G K,4&!D14!.;3 /) 564Z3;&(-2!&) .I 564B 06'8 ('6: " /" 2* (**D 4&6* ,/(.2* 7;&-* A2*(* .2* 5/0.23 A2/ 2&1 &;(*&15 7&33*1 .2(/0>2 .2* 2 7*(,/(6*1 .2*!(>564&3.!- *0*(-!3*3 8 **) 9 - 0-2 A&3 .2* !67/(.&4-* A2!-2 .2* (**D3 &..&-2*1 ./ 7253!-&; .(&!4!4> .2&. 4/ -!.5 !4 (**-* 7(/7*(&41 4/ (**D -/;/45 A&3 A!.2/0. !.3 1: " 2*(* A*(* 3*=*(&; !4 .2* ;&(>*(-!.!*3 .2*43 ,/(!43.&4-* !4 .2* .!6* / ,!.3 >(*&.4*33 7/33*33*1 .2(** &;; 3!.0&.*1 /0.3!1* .2* -!.5 .2* $ .2* .8! &41.2*$:" 1 4;&.*(.!6*3 .2*(* A*(*=*4 6/(* .A&3 !4 .2* 1: " .2&. .2* (A*4.*.2(/0>2 .2* .A/ 5*&(3 -/0(3* /, *0*(-!3*3 A2!-2 A*(* ./,!. .2*6 ,/(6!;!.&(5 3*(=!-* 2* 3!67;*3. ,/(6 /, &1: " A&3 .2&. /, & -/0(. 30((/041*1 <5 -/;0643 G G G G A (. 4 (

(&.!3/(6 O /(.!-/ , F &33&>* &(6<&.23 /;1<&.23 *&(.&!(-&3* ./;&-/4.-05f /.2&.2 . &;; ,B*5 -43 /6&47/*./-/4.*67/(&(5 (*33!4>"(//63 A!.2 =!1 * A&3 .2* &0.2/(/, & 7/*6/4 .2* -2&3*#$:" 1 " /, A2!-2 /4;5 .2* ,!(3.</!D 2&3 <**4 7(*3*(=*1 &41 .2&. 60.!;&.*1 ./A&(13 .2* -;/3* 2* ,(&>6*4. -/43!3.3 /, 3/6* V V 2*0&6*.*(3 !4 A2!-2 .2* 30<*-.!3 .(*&.*1 B &(^ 3!!(!, E !(3" 8/4!&4 " L!! 7!CN9 A!.2 60-2 .&;*4.!4 &4 *=*4 &41 -;&33!-&; 3.5;* <0. A!.2 -/43!1*(&<;* 1(54*33 !4 6&45 7&(.3 (&..!03 2&3 <**4 3.5;*1 " <*-&03* !4 /4* 7&33&>* 2* &7F 7&(*4.;5 !41!-&.*3 .2&. .2* &;!3-! A*(* 2!3 -/04.(56*4 (/6&" 2* 6*&30(!4> !43.(&6*4. 03*1 <5 ;&41 30(=*5/(3 A2/ A*(* -&;;*1 6 2 ,(/6!. / ! &! 03.J.;/ G K,4&!D14!.;3 /) 564Z3;&(-2!&) .I 564B 06'8 ('6: " /" 2* (**D 4&6* ,/(.2* 7;&-* A2*(* .2* 5/0.23 A2/ 2&1 &;(*&15 7&33*1 .2(/0>2 .2* 2 7*(,/(6*1 .2*!(>564&3.!- *0*(-!3*3 8 **) 9 - 0-2 A&3 .2* !67/(.&4-* A2!-2 .2* (**D3 &..&-2*1 ./ 7253!-&; .(&!4!4> .2&. 4/ -!.5 !4 (**-* 7(/7*(&41 4/ (**D -/;/45 A&3 A!.2/0. !.3 1: " 2*(* A*(* 3*=*(&; !4 .2* ;&(>*(-!.!*3 .2*43 ,/(!43.&4-* !4 .2* .!6* / ,!.3 >(*&.4*33 7/33*33*1 .2(** &;; 3!.0&.*1 /0.3!1* .2* -!.5 .2* $ .2* .8! &41.2*$:" 1 4;&.*(.!6*3 .2*(* A*(*=*4 6/(* .A&3 !4 .2* 1: " .2&. .2* (A*4.*.2(/0>2 .2* .A/ 5*&(3 -/0(3* /, *0*(-!3*3 A2!-2 A*(* ./,!. .2*6 ,/(6!;!.&(5 3*(=!-* 2* 3!67;*3. ,/(6 /, & -/0(. 30((/041*1 <5 -/;0643

(*=!=*1 !4.*(*3. !4 .2* /;1*(;!.*(&.0(* 2!3 7*(!/1 !3 1!3.!4>0!32*1 <5 .2* 4&6*3 /, 0*./4!03 *(*4.!,;3 -&0(03 &41 0;03 XV*;;;03 0*./4!03 &37!(*1 ./ .2* 6&45"# 3!1*1 ;*&(4!4> /, &((/ .=&3 60-2 :0/.*1 <5 ;&.*(A(!.*(3 ,.*(.2!3 .!6* .2* >(&666!&43 .*41 6/(* &41 6/(* ./ -/4,!4* .2*!(3.01!*3 ./ 7/!4.3 /, ;&4>0&>* ./ &<&41/4 !41*7*41*4. (*3*&(-2 &41 ./ 1*7*41 /4 .2* ;&</0(3 /, .2*!(7(*1*-*33/(3 2* -2!*, =&;0* /, .2*!(A(!.!4>3 -/43!3.3 !4 .2* ,&-. .2&. .2*5 2&=* 7(*3*(=*1 3/6* ,(&>6*4.3 /, &4-!*4. ;*&(4!4> 2*!(*0.(&-.3 &(* 030&;;5 6&1* ;/(3-2//; 70(7/3*3 &41 70. ./>*.2*(!4 - /(6&40&;3 /, &--!1*4-* /(.2/>(&725 7(/3/15 &41 6*.(* 0-2 &(* .2* </!D3 /, ' J(03 =!-./(!4 /4&.03 *(=;03 2&(!" 3;03 !/6*1*3 A2/ &(* &;;&33!>4*1 ./ .2* C.2 -*4.0(5 4 03 &(-*;;03 <*;/4>3 ./ .2* 3&6* 7*(!/1 *! 3 .2* &0.2/(/, &A/(D 8@a* $ " " 5 "" A2!-2 .2/0>2 1(*&(5&41 04-(!.!-&; !3 !4=&;0&<;* ;/(.2* 3./(*3 /, /;1 &.!4 A2!-2 !. 2&3 7(*3*(=*1 &41 .2&. 60.!;&.*1 ./A&(13 .2* -;/3* 2* ,(&>6*4. -/43!3.3 /, 3/6* V V 2*0&6*.*(3 !4 A2!-2 .2* 30<*-.!3 .(*&.*1 B &(^ 3!!(!, E !(3" 8/4!&4 " L!! 7!CN9 A!.2 60-2 .&;*4.!4 &4 *=*4 &41 -;&33!-&; 3.5;* <0. A!.2 -/43!1*(&<;* 1(54*33 !4 6&45 7&(.3 (&..!03 2&3 <**4 3.5;*1 " <*-&03* !4 /4* 7&33&>* 2* &7F 7&(*4.;5 !41!-&.*3 .2&. .2* &;!3-! A*(* 2!3 -/04.(56*4 (/6&" 2* 6*&30(!4> !43.(&6*4. 03*1 <5 ;&41 30(=*5/(3 A2/ A*(* -&;;*1 6 2 ,(/6!. / ! &! 03.J.;/ G K,4&!D14!.;3 /) 564Z3;&(-2!&) .I 564B 06'8 ('6: " /" 2* (**D 4&6* ,/(.2* 7;&-* A2*(* .2* 5/0.23 A2/ 2&1 &;(*&15 7&33*1 .2(/0>2 .2* 2 7*(,/(6*1 .2*!(>564&3.!- *0*(-!3*3 8 **) 9 - 0-2 A&3 .2* !67/(.&4-* A2!-2 .2* (**D3 &..&-2*1 ./ 7253!-&; .(&!4!4> .2&. 4/ -!.5 !4 (**-* 7(/7*(&41 4/ (**D -/;/45 A&3 A!.2/0. !.3 1: " 2*(* A*(* 3*=*(&; !4 .2* ;&(>*(-!.!*3 .2*43 ,/(!43.&4-* !4 .2* .!6* / ,!.3 >(*&.4*33 7/33*33*1 .2(** &;; 3!.0&.*1 /0.3!1* .2* -!.5 .2* $ .2* .8! &41.2*$:" 1 4;&.*(.!6*3 .2*(* A*(*=*4 6/(* .A&3 !4 .2* 1: " .2&. .2* (A*4.*.2(/0>2 .2* .A/ 5*&(3 -/0(3* /, *0*(-!3*3 A2!-2 A*(* ./,!. .2*6 ,/(6!;!.&(5 3*(=!-* 2* 3!67;*3. ,/(6 /, & -/0(. 30((/041*1 <5 -/;0643

^

G G G G A (. 4 (

.2*' !4-(*&3!4>' !4-;!4&.!/4' /,' >(/A4' 6*4' ./'
;//D' /4' &.' .2* 6' &41' .&D*' 7&(.' !4' .2* 6 ' .2*'
1: " ' /,.*4' &1/(4*1' A!.2' <*&0.!,0;'
3-0;7.0(*3' >(*A' !4' *0.*4.'&41' 37;*41/0(' /,'
*:0!76*4.' # ' -0. 9

2*' >(*&.' -/0(.' -/67(!3*1' &' 406<*(' /,'
37&-*3' 3*(=!4>' &' =&(!*.5' /,' 70(7/3*3\ ,/('
!43.&4-*' .2*' (<"' /(' 2&;;' A2*(*' .2*'
(' 7(&-.!3*1' (//63' ,/(' 1(*33!4>' &41'
&4/!4.!4>' 3&41!4>' /(' 103.!4>' .2*' </15'
-/;1"A&.*(' <&.23' &41' 1(5' ' 37&-*3'
,/(' 7;&5!4>' &.' <&;;' /7*4' &41' -/=*(*1' 7&3F
3&>*3' ,/(' 464!4>' A(*3.;!4>' /(' A&;D!4>'
..&-2*1' ./' .2*' -/;/44&1*3' /4' .2*' /0.3!1*'
A*(*' 3*6!-!(-0;&(' 4!-2*3' ,&6!32*1' A!.2'
3./4*' 3*&.3' -&;;*1' - ' ;' .2*3*' 72!;/F
3/72*(3' &41' (2*./(!-!&43' A/0;1' 3!.' &41' .&;D'
A!.2' .2*!(' 1!3-!7;*3' ' "' A!.2' &'
37&-*' ,/(' 37*-.&./(3' ./' ;//D' /4' &41' A&;D3'
7;&4.*1' A!.2' .(**3' A*(*' /,.*4' &..&-2*1' ./'
.2*' 1: " ' 2*' A2/;*' A&3' 041*(' .2*'
307*(!4.*41*4-*' /,' &' 1: " (' 2*'
-/410-.' /,' .2*' 5/0.23' A&3' 041*(' .2*' 307*(F
=!3!/4' /,' (" ' .' .2*43' .2*3*'
/, -*(3' A*(*' .*4' !4' 406<*(' &41' *;*-.*1'
&440&;;5' 2*' *0*(-!3*3' A*(*' 1!(*-.*1' <5'
.2*' 1: " @' /(' 3!6!;&(' &((&4>* 6*4.3'
041*(' .2*' /6&4' *67!(*' ' &
564&3.!-3' ' 6 "' 2*' &(.' /,'
7253!-&;' *0*(-!3*3' 3/' -&;;*1' <*-&03*' .2*'
(**D3' 7(&-.!3*1' .2* 6' .6-;/.2*1' &1: " '
&(!/03' *0*(-!3*3' /,' .2*' D!41' -&((!*1' /4' !4'
=!*A' /,'-/4.*3.3' /4',*3.!=*' /--&3!/43' &(*' 6*4F
.!/4*1'&3' *&(;5'&3' /6*(' ,.*(' .2*' /6*(!-'
.!6*' .2*5' A*(*' &.' &;;' 7*(!/13' A!1*;5' 7(&-F
.!3*1' &6/4>' .2*' (**D3' &41' 6/(*' 3/' &,.*('
.2*5' A*(*' ;*>&;;5' 7(*3-(!<*8 WhB&3 7&(.' /,'
.2*' (*>0;&(' *10-&.!/4&;' -/0(3*' *37*-!&;;5' &.'
.2*43' &41' 7&(.&' 2*5' A*(*' 6/(*/=*('
&-.!=*;5' *4-/0(&>*1' <5' .2*' >(*&.' 4&.!/4&;'
>&6*3' 7&(.!-0;&(;5' .2*' ;567!&4' >&6*3' /,'
A2!-2' .2*5',/(6*1' .2*-2!*,'7&(.' *(J-;*3'
G&41' *(6*3' A*(*' .,!*' .0.*;&(5' >/13' /,'
>564&3.!-3' A2!-2' &..&!4*1' !4' .2*43' .2*!('
2!>2*3.' &41' 6/3.'=&(!*1'1*=*;/76*4.' 2*'
/<*-.' /,' .2*' &(.' A&3' ./' 1*=*;/7' .2*' </15'
2&(6/4!/03;5'!4'2*&;.2'&-.!=*1.5'&41'<*&0.5'
/53' A*4.' .2(/0>2' -*(.&!4' 7(*;!6!4&(5'
3.&>*3' /,' >564&3.!-3' !4' .2*' '&41'
-&((!*1' /4' .2*!(' ,0(.2*(' .(&!4!4>' ./' 7*(,*-F
.!/4' !4' .2*' 1: " ' # '@*&)&
2*' 1!,,*(*4.' D!413' /,' *0*(-!3*3' A*(*' &3'
,/;;/A3\ 8$9' 044!4>' # ' /(' = "'
2!3' A&3' .2*' /;1*3.' /,' &;;' &41' ,/(' &' ;/4>'
.!6*' .2*' /4;5' /4*' 7(&-.!3*1' !4' .2*' 70<;!-'
>&6*3' 4' ;&.*(' .!6*3' !41**1' !.' 3./!1' &.'
.2*' 2*&1' /,' .2*' ;!3.' 2*' -/0(3*' A&3' *!.2*('
3!4>;*' # "' 4*&(;5'.2*'*!>2.2' /,' &' 6!;*9'
/(' 1/0<;*' # ' 2*' (044*(' A&3' 3/6*F
.!6*3' *:0!77*1' A!.2' 2*;6*.' &41' >(*&=*3B'
<0.' !4';&.*(' .!6*3' /4;5'A!.2'.2*';&..*(' 2*'
2&(1*3.' /,' &;;' A&3' .2*' ;/4>' -/0(3*' /('
' 2!3' A&3' &' 1!3.&4-*' /,' @C' !'
<*.A**4'.A/'&41'.2(**' 4>;!32'6!;*3'A2!-2'
2&1'./'<*' (04'A!.2/0.'3./77!4>

8@9' *&7!4>' # ' 2!3' !4-;01*1'
.2*' 2!>2' 6!1'A!1*'K0 6 7' &41'K0 6 7!4>'1/A4F
A&(13' /'3.(*4>.2*4'.2*'7/A*('/,'37(!4>'
&41' 3*-0(*' .2*' *:0!;!<(!0 6' /,' .2*' </15'
37-!&;;5' !4' ;*&7!4>' 1/A4A&(13' !.' A&3'
-/66/4./'03*' 7!*-*3' /,'!(/4'-&;;*1' (1'
4/.'04;!D*' /0(' 106<"<*;;3

8 9' (*3.;!4>' # ' 2!3' A&3' .2*'
6!-*' ' " ' /,' .2*' (**D' >564&3.!-'
2*'-/6<&.&4.3'A*(*'&;;/A*1'-*(.&!4'.(!-D3'
A2!-2' &(*' 4/A' ,/(<!11*4' &3' .2(/..;!4>'
7032!4>'&41'.A!3.!4>'.2*',!4>*(3' .&41!4>'
7(!>2.' *&-2' AB.;*(' .(!*1' ./' .2(/A' .2*'
/.2*(' 1/B' &41'!,' /4*' /,' .2*6' A&3' .2(/A4'
.2(!-*' 2*' A&3' (*> (1*1' &3' <*&.*4' 04;*33'
.2*' -/4.*3.' A&3' -/4.!40*1' /4' .2*' >(/041'
4' .2!3' -&3*' D*' /4*' A2/' A&3' .2(/A4'.(!*1'
./' >*.' 07' A2!;*' .2*' /.2*(' .(!*1' ./' 2!41*('
2!6' 04.!;' 2)' /A4*1' 2!63*;'=&4:0!32*1

,/(' &;' >564&3.!-' *0*(-!3*3' .2*' </15'
A&3' A*;;' (0<<*1' A!.2' /!;' ./' 6&D*' .2*'
;!6<3' 3077;*' 0.' <*,/(*' A(*3.;!4>' K.' A&3'
&;3/' 37(!4D;*1' A!.2' 103.' 7&(.;5' ./' &,,/(1'
&',!(6' 2/;1' 7&(.;5' ./' 7(*=*4.' *0-*33!=*'
7*(37!(&.!/4

8C9' 5 = ' .2(/A!4>' .2*' '
' ( )
8?9' 2(/A!4>'.2*'K&=*;!4'#' "

8$9' ' ' ' !*!;; ' ' ' \
' ' ' ' " ' .' 5
8 &3*'!4'<(!.!3;!' 03*4!S\ ' (/2 '$R?N'0'@$$9

2*3*' ,!=*' *0*(-!3*3' ./>*.2*(' ,/(6*1' .2*'
$/(' 3*.' /,' ,!=*' !4' A2!-2'4/' /4*'
A&3' &--/04.*1' =!-./(!/03' A2/' 2&1'4/.'-/4F
:0*(*1'!4' &;;' *3!1*3' .2*3*' .2*(*' A&3
8?9' 2*' 1&4>*(/03' >&6*' /,' </0!4>'875&''
:1 ' 4' .2!3' .2*' -/6<&.6!.3'3.446'/0.'
A!.2' *&-2' 2&41' &;.*(&.*;5' .2*!(' 2&413'
<*!4>'</041'(/041'A!.2'.2/4>3'3/'&3'./';*&=*'
,!4>*(3' &41' .206<' ,(**' ./' ,/(6' &-;*4-2*1'
,!3.' 9 ' *4>(&=!4>9' .2;*.*3' /,.*4' ,!..*1'
.2*' .2/4>3'A!.2'3.(!73'/,'32&(7'&41'2&(1*4*1

;*&.2*(/(A!.2 4&!;3 &41 ;*&1*4 D4/<3 2*<;/A A&3 1!(*-.*1 &>&!43. .2* 077*(7&(./, .2*</15 2*&1 &41 ,&-*

<*-/6*,&32!/4&<;* 2* /6&4 3*43* /, 7(/7(!*.5A&3/,!*41*1<5.2* (**D7(&-.!-* /, *0*(-!3!4> 04-;/.2*1 &41 .2* /4;5>&6* A2!-2 .2*5 (*&;;5 &1/7.*1 A&3 .2&./, .2(/A!4>.2*

5 6 4 J .3 8.(//73 A!.2/0. 1*,*43!=* &(r 6/0(9 4&6*,/(.2* 1!,,*(*4. 3/(.3 /, 32&(732//.*(3*6 7;/5*1 !4.2* (**D &(6!*3 &,.*(.2* *(3!&4 &(3 !4 7;&-* /, .2*;!>2.F &(6*1 3;&=*3 .A&3 4;5 &,.*(.2**07*F 1!.!/4 /, .2* *4 2/03&41 .2&. .2*5 -&6* ./ ,/(6 &4 *33*4.!&; 7&(./, & (**D &(65 2*5 A*(* >*4*(&;;5 (*-(0!.*1 ,(/6 .2* <&(<&(/03 4&.!/43 A2/ A*(* 37*6&;;5 1!3F .!4>0!32*1 !4 .2* 03* /, 7&(.!-!.!&(6!33!;*3 2* &(-2*(3 # ! ,/(!43.&4-* A*(* >*4*(&;;5 (*.&43.2*3;!4>*(3# (" "$ 2/1!&43 &41 2*33&;!&43 A;B*.;B K&=*;!4 6*4 & " A*(* .&D*4 ,(/6 .2* 3*6!" *;;*4!- 7/70;&.!/43 !4 .2* *3./, (**-* 4/.&<;5 .2* ,,!./;!&43 &41 -&6&4!&43 2* -/66/4 -2&(&-.*(!3.!- /, &;; .2*3* .(//73 A&3 .2* &<3*4-* /, &;; 1*,*43!=* A*&7/43 .A&3&6/4>.2* &-*1*6/4!&43 .2&..2*5 A*(* !4.(/10-*1 ;&.*3. ;*0&4F 1*(.2* (*&.2&1 &-/(73 /, @ NNN /, .2*6 8U 2* , " < @"" A&3 &-/6<!4&.!/4A!.2 A2!-2 2* /7*4*1 2!3 -&67&!>4 &>&!43. /, </0!4> &41 A(*3.;!4> <0. 4/.2!4> A&3 A/(4 /4 .2* 2&413 &41 .2* <;/A A&3 1*;!=*(*1 4/. A!.2 .2* -;*4-2*1 ,!3. <0. A!.2 .2* ,!4>*(3 <*4. 2!3 *0*(-!3* A&3 4/.!4.(/10-*1 !4./.2* 70<;!- >&6*3 04.!; ?VN /41**1 .2* .A/ ;&..*(*0*(-!3*3 A*(* >*4*(&;;5 -/4,!4*1 ./.2* 7(/,*33!/4&; &.2;*.*3 # 4 7&(.&.2*5 A*(* 4/.7(&-.!3*1 &.&;; 7 "6/4> .2* /6&43 ,(/6 .2* /;1*3. .!6*3 04.!; .2* !67*(!&; 7*(!/1 .2* 5<0.23 03*1 ./ &33*6<;*,/(*0*(-!3*3 !4 .2* &6703 &(.!43 .2* /<K*-./,.2**0*(F -!3*3 <*!4> *0-;03!=*;5 ./7(*7&(* .2*6 ,/(6!;!.&(5 3*(=!-* 8 ,**)(2* (**D >5643&.!- A&3 4/. !4.(/10-*1 &. /6*04.!; .2* 1*-;!4* /, /6&4 .(&1!.!/4 2&1 3*.!4 &41 7(/,*33!/4&; &.2;*.!-!36 2&1 <*-/6*,&32!/4&<;* 2* /6&4 3*43* /, 7(/7(!*.5A&3/,!*41*1<5.2* (**D7(&-.!-* /, *0*(-!3!4> 04-;/.2*1 &41 .2* /4;5>&6* A2!-2 .2*5 (*&;;5 &1/7.*1 A&3 .2&./, .2(/A!4>.2*

5 6 4 J .3 8.(//73 A!.2/0. 1*,*43!=* &(r 6/0(9 4&6*,/(.2* 1!,,*(*4. 3/(.3 /, 32&(732//.*(3*6 7;/5*1 !4.2* (**D &(6!*3 &,.*(.2* *(3!&4 &(3 !4 7;&-* /, .2*;!>2.F &(6*1 3;&=*3 .A&3 4;5 &,.*(.2**07*F 1!.!/4 /, .2* *4 2/03&41 .2&. .2*5 -&6* ./ ,/(6 &4 *33*4.!&; 7&(./, & (**D &(65 2*5 A*(* >*4*(&;;5 (*-(0!.*1 ,(/6 .2* <&(<&(/03 4&.!/43 A2/ A*(* 37*6&;;5 1!3F .!4>0!32*1 !4 .2* 03* /, 7&(.!-!.!&(6!33!;*3 2* &(-2*(3 # ! ,/(!43.&4-* A*(* >*4*(&;;5 (*.&43.2*3;!4>*(3# (" "$ 2/1!&43 &41 2*33&;!&43 A;B*.;B K&=*;!4 6*4 & " A*(* .&D*4 ,(/6 .2* 3*6!" *;;*4!- 7/70;&.!/43 !4 .2* *3./, (**-* 4/.&<;5 .2* ,,!./;!&43 &41 -&6&4!&43 2* -/66/4 -2&(&-.*(!3.!- /, &;; .2*3* .(//73 A&3 .2* &<3*4-* /, &;; 1*,*43!=* A*&7/43 .A&3&6/4>.2* &-*1*6/4!&43 .2&..2*5 A*(* !4.(/10-*1 ;&.*3. ;*0&4F 1*(.2* (*&.2&1 &-/(73 /, @ NNN /, .2*6 8U 2* , " < @"" A&3 &-/6<!4&.!/4A!.2 A2!-2 2* /7*4*1 2!3 -&67&!>4 &>&!43. /, </0!4> &41 A(*3.;!4> <0. 4/.2!4> A&3 A/(4 /4 .2* 2&413 &41 .2* <;/A A&3 1*;!=*(*1 4/. A!.2 .2* -;*4-2*1 ,!3. <0. A!.2 .2* ,!4>*(3 <*4. 2!3 *0*(-!3* A&3 4/.!4.(/10-*1 !4./.2* 70<;!- >&6*3 04.!; ?VN /41**1 .2* .A/ ;&..*(*0*(-!3*3 A*(* >*4*(&;;5 -/4,!4*1 ./.2* 7(/,*33!/4&; &.2;*.*3 # 4 7&(.&.2*5 A*(* 4/.7(&-.!3*1 &.&;;

*4*65 /,&;;!,* 2*&(.;*33 &41 !4*0/(&<;* &41 2&.*1 &--/(1!4>;5 <5 >/13 &41 6*4 &-(!,!-* &41 7(&5*(&(* /, 4/ &=&!;A!.2 2!6 &41 2* !3 .2*(*,/(* /4;5A/(32!77*1 /4*0-*7.!/4&;/--&3!/43 0. ;!D* *(3*F 72/4* 2* A&3 3/6*.!6*3 (*7(*3*4.*1 !4&6!;1*(;!>2. <*!4> -&;;*1 ;0./ /(.;K!* >!=*(/, A*&;.2 2!3 <*-&03* !.!3 ,(/6 .2* 1*7.23 /, .2* *&(.2 .2&.-/6 &41 !.3 &..*41&4. <;*33!4>3 &(* 7(/10-*1 3 /;1 &3 *3!/1!3 .2* &1=!-* ./ .2* 7;/0>2*(./ -&;;07/4 .2* L*03 /, .2*;/A*(A/(;1 &3 A*;;&3 07/4 *6*.*(

8 /6* !;;& /(>2*3*9

2* 6/3. -*;*<(&.*1 /, .2* 65.23 (*F ,*((!4> ./ &1*3 !3 .2&./, .2* (&7* /, *(3*72/4* 4 A/(D3 /,&(. 2* !3 (*7(*F 3*4.*1 &3 (*3*6<;!4>2!3 <(/.2*(3 L*03 &41 /3*!1/4 <0.A!.2 >;//65,*&.0(*3 &41 2&!(,&;;!4>/=*(2!3<(/A .2* D*5 /, .2* !4,*(4&; A/(;1 !4 2!3 2&41 &41 .2* 1/ *(< (0 &. 2!3 3!1* % /6*.!6*3 2* &77*&(3 &3 &>/1 /, &>(!-0;.0(* A!.2 & -/(40-/7!& /(& .A/F 7(/4>*1 7!-D&0* 2* 7;&4.3 3&-(*1 ./ 2!6 A*(* .2* -57(*33 &41 .2* 4&(-!3303 <;&-D 32**7 A*(* /,,*(*1 2!6 !4 3&-(!,!-*

2* A/(1 !3 &;3/ &>*4*(&; .*(6 ,/(.2* ;/A*((*>!/43 5 .2* /6&43 &1*3 A&3 !1*4.!,!*1 7&(.;5 A!.2 7&(.;5 A!.2 5

&1*3 *&;6 /, --/(1!4>./ .2* <*;!*, -0((*4.&6/4>.2* "(**D3 .2* A/(;1 /, .2* 1*&1 /(.2* 37&-!/03 &</1* /, &1*3 A!.2

!.3 A!1* 1//(3 A&3 !4 .2* 1&(D 1*7.23 /, .2* *&(.2 4 .2* 1533*5 !.3 *4.(&4-* &41 /0.*(-/0(. &(* /!; .2* A*3.*(4 3!1* /, .2* (!=*(-?J403 !4 .2* >(/041 3&-(*1 ./ *(3 72 4* A!.2 !.3 >(/=* /, <&((*4 A!;F ;/A3 &41 7/7;&(3 *(* !3 .2* &</1* /, .2* !6 6*(!&43 =*!;*1 !4 1&(D4*33 &41 -;/01 A2*(* .2* 304 4*=*(32!4*3 2* 3/!; /, .2!3 -/0(. &41 !41**1 Y, .2*;/A*(A/(;1 !4 >*4*(&;!3& 6*&1/A /,&372/1*; &4 04&..(&-F .!=* A**1 /, 1(*&(5 &37*-. 030&;;5 7;&4.*1 /4 >(&=*3 2* &-.0&; &</1* /, .2* 30<.*(F (&4*&4 7/A*(3 !3 (,!<13 /(.2* !67*4*.(&<;* 1&(D4*33 4 ;&.*(.!6*3 *4.(&4-*3 ./ .2* ;/A*(A/(;1 A*(* !6&>!4*1 !4 /.2*(7;&-*3 A2*(* .2*(* A*(* -&=*(4/03 2/;;/A3 A2!-2 ;//D*1 &3 !, .2*5 ;*1 !4./.2* </A*;3 /, .2* *&(.2 0-2 7;&-*3 B*(* *(6; 4* &41 .2* 7(/6/4./(5 /, 3*4&!..6 !4 .2* *;/7/44*3* *(&1*& /4 .2* 00!4* &41 06&* !4 .&;5 A2*(* .2* 65.2!-&; !6 6 (!; A*(* &;3/ ;/-&;!Q*1 2* ;/A*(A/(;1 /, /6*(!3 !4.*(3*-.*1 <5 >(*&. (!=*(3 .2* .50 .2* -2>(/4 8(!=*(/, /A/*9 /-5.03 8(!=*(/, -(!*39 &<(&4-2 /, .2* .50 2; >*.2/4 &41 5(;72;>> .2/4 8(!=*(3 /, ,!(*9 2* ;&3. .A/ 04!.* &41 K/!4 .2* A&.*(3 /, .2* -2*(/4 4 .2* 7/3." /6*(!* ;B*41 .2*3* (!=*(3 &(* (*7(*3*4.*1 &3 30((/041F !4>.2* !4,*(4&; (*B/43 &41 &4/.2*((!=*(&77*&;3 A!.2 .2*6 .2&./, *.2* /(/<F ;!=!/4 4 .2* A&.*(3 /, *.2* .2* 3/0;3 /, .2* 1*&1 1(!4D ,/(>*.,0;4*33 /, .2*!(*&(.2;5 *0!3.*4-* 2* ;/A*(A/(;1 /4-? -/4-*!=*1 &3 3*7&(&.*1 ,(/6 .2* 077*(<5 .2*3* (!=*(3 .2* !1*& /, & ,*((56&4 &(/3* 2!3 A&3 2J(/4 .2* 3/4 /, (*</3 &41 /, 50 &>;//65 30;;*4 /;1 6&4 A2/ .&D*3 .2* 3/0;3 !4 2!3 </&. &-(/33 -2*(/4 !4./ .2*(*&;6 /,32&1/A3 2*3/0;3 &(*<(/0>2. 1/A4,(/6 .2* 077*(A/(;1<5 *(6*3 &41 7&5 .2*,*((56&4 &4 =! A2!-2 A&3 70. ,/(.2!3 70(7/3* !4./ .2* 6/0.23 /, .2* 1*&1 2&(/4 2&3 .2* (!>2. ./ (*,03* & 7&33&>* ./ 3/0;3 A2/3* </1!*3 2&=* 4/. <**4 10;5 <0(!*1 4 /6*(!. !3 .2* 37!(!.3 .2*6F 3*;=*3 A2/ (*,03* ./ (*-*!=* &45 /4* ./ A2/6 ,04*(&; 2/4/0(3 2&=* 4/. <**4 7&!1 . .2* >&.* ;!*3 .2* 1/>* *(<>(03 3/4 /, 572&/4 &41 -2!14& * !3 & .*((!<;* 6/43.*(A!.2 .2(** 2*&13 &41 6&4* &41 .&!; /, 34&D*3 * !3 ,(!*01;5./ .2* 37!(!.3 A2/ *4.*(<0.!, &45 /4* .(!*3 ./ >*. /0.2* 3*!Q*3 2!6 &41 2/;13 2!6 ,&3.

2* >2/3.3 /, .2* 1*&1 A*(* !4 &4-!*4. .!6*3 -/4-*!=*1 &3 !4-/(7/(*&; !6&>*3 /, .2*!(,/(6*(3*;=*3 A!.2/0. 6!41 /(-/4F 3-!/034*33 4 .2* 1533*5 .2* 3**(!(`* 3;&3 !3 .2* /4;5 /4* A2/ 2&3 (*.&!4*1 2!3

-/43*!/434*33' &41' K01>6*4.' &41' .2!3' &3' &4' *0-*7.!/4&;' >!,.' /,' *(3*72/4*' 0.' .2*5' 2&=*' .2*' 7/A*(' /,' 1(!4D!4>' .2*' <; /1' /,' &4!6&;3' &41' 2&=!4>' 1/4*' 3/' .2*5' (*-/=*(' .2*!(' -/43-!/034*33' &41' 7/A*(' /,' 37**-2' 2*' 3/0;' .2*(*,/(*' !3' 4/.' -/4-*!=*1' &3' *4F .!(*;5' &44!2!;&.*1' 2*' >2/3.3' (*.3!0' .2*' /0.*(' ,/(6' /,' .2*!(' </15' &41' ,/;;/A' <0.' !43.!4-.!=*;5' /4;5' A2&.' A&3' .2*!(',&=/0(!.*' 70(30!.' !4' ;!,*' (!?4' !4' /6*(' !3' 3.!;;' &' 204.*(' !413' 3!.3' !4' K01>6*4.' &3' A2*4 .2&.' /6*(' 3*=*(&;' .!6*3' 6*4.!/43' .2&.' .2*' (!45,!3' 704!32' 7*!K0,*(3' &,.*(' 1*&.2' *' &(*',/(-*1' .2*4' ./' -/4-;01*' .2&.' .2*' &4-!*4.' <*;!*,' !3' !4' .2!3' !43.&4-*',/041' 3!1*' <5' 3!1*' A!.2' .2*' ;&.*(' &41' >*4*(&;;5'(*-*!=*1' !1*&' .2&.' .2*' 1*&1' *=*4' A!.2/0.' 1(!4D!4>' <;//1' 7(*3*(=*1' .2*!(' -/43-!/034*3*' &41' 7/A*(' /,' 37**-2' /44*-.*1' A!.2' !.' !3' .2*' 4/.!/4' .2&.' .2*5' 2&=*' .2*' 7/A*(' /,' !4,;0*4-!4>" 6*4 3' ;!,*' /4' *&(.2' !4' =&(!/03' A&53' 2*' 6/3.' &4-!*4.' <*;!*,' D4/A3' 4/.2!4>' /,',0.6*

a' ' '

.2*' (*&;6' /,' &1*3'& ' / ' 2*' 4&6*' + ' A&3' !4' ;&.*(' .!6*3' /,.*4' &77;!*1' ./' .2*' A2/;*' /,' .2*' ;/A*(' A/(;1' 2*' >2/3.3' /,' .2/3*' A2/' 2&1' ;!=*1'&' ;!,*' /,'&=*F (&>*' 6*(!.' A*(*' !6&>!4*1'&3' A&41*(!4>' /4' .2*' &372/1*;' 6*&1/A

4'>*4*(&;'!.'603.'<*' 3&!1'.2&.'.2*'&4-!*4.' !1*&3' /,'&',0.0(*';!,*' A*(*' &;A&53'30<\(*-.'./' -/43!1*(&<;*' -2&4>*3'/A!4>'./'.2*'!4,;0*4-*' /,' .2*' 1/-.(!4*3' .&0>2.' !4' .2*' 653.*(!*3' &41' .2*' (*7(*3*4.&.!/43"' /,' 7/*.3' 72!;/3/F 72*(3' 3-0;7./(3' &41' 7&!4.*(3' & ' @ 5 %$' 2*' >*4*(&;' .*41*4-5' A&3' ./' 60;.!7;5' .2*' .*(((/(3' /,' &1*3'*37*-!&;;5'&.' .2*'>&.*3'&41'!4' &(.&(03' 8 /(' .2*'1*!.!*3' /,' .2*' ;/A*(' A/(;1' ' / ' &41' * ' 2*' (**D' <*;!*,3' /4' .2*' 30<\(*-.',/041' .2*!(' A&5'./' /6*' .2(/0>2' .2*' !43.(06*4.&;!.5' /,' .2*' 7/*.3'*37*-!&;;5' *(>!;' 0.' .2*5' 1!1' 4/.' *4.!(*;5' 307F 7;&4.' .2*' 4&.!/4&;' .(&1!.!/43' & ' 5 (' 0 ' 0 ' ' " ' ' + 9

&41' 1*1!-&.*1' !.' ./' 3/6*' 1*!.5' >*4*(&;;5' ./' 7/;;/'/(' .2*'>/13'/,'.2*!(' (!=*(3'/(' .2*' 56723' A2/' A*(*' (*>&(1*1'&3' .2*' 7(/F .*-.(*33*3' /,' 5/0.2' 0.'&',(**' .2*4!&4' -!.!Q*4'1!1'4/.'A*&(' 2!3' 2&!(' =*(5'32/(.' /(' 2*' A/0;1' 2&=*' <**4' 6!3.&D*4' ,/(' &3;&=*' A2/'A/0;1' <*' /<;!>*1' ./' 1/'3/' /A4' ./' .2*' .!6*' /,' ;*0&41*(' .2*' (*&.' &' &',0;;' <*&(1' A&3' (*>&(1*1' &3'&' 6&(D' /,' 6&4;5' 1!>4!.5' ,.*(' .2!3'!.' <*-&6*' ,&32!/4&<;*" ./' 32&=*' .2*' ,&-*' :0!.*' 36//.2' &41' /4;5' 72!;/3/72*,3' A/(*' <*&(13' ./' 6&(D' .2*!(' &4.&>/4!36' ./' .2*' >*4*(&;' -03./6' 2*' /6&43' .//' !4' &4-!*4.'.!6*3' A/(*' ;/4>F 2&!(' &41' <*&(13' .' A&3'4/.'.!;;' NN' - ' A2*4' .2*',!(3.' 2&!("-0..*(' &" ' -&6*' ./' /6*',(/6' !-!;5'.2&.'.2*5'<*>&4'./'-0.'</.2' 2*'5/04>*(' -!7!/'!3'3&!1'./'2&=*'<**4' .2*" ,!(3.' /6&4' A2/' 32&=*1'*=*(5' 1&5' 4' /0(3*' /,' .!6*' !.' <*-&6*' .2*' ,&32!/4' ./X 6&D*' &',*3.!=&;' /,' .2*' 1&5' A2*4' .2*' <*&(1' A&3' ,!(3.' 32&=*1' /04>' 6*4' 2/!,(*=*(

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3*6/4' '

&!(' 6/1*' /,' A*&(!4>' 2*' (**D3'/,' .2*' /;1*3.' .!6*3' (*>&(1*1' ;/4>' 2&!(' !4' &' 6&4' &3' &4' /(4&6*4.' &41' /4;5' -0.'!.' &3'&' 3!>4' /,' 6/0(4!4>' 6/4>' .2*' 7&(.&43'!.' A&3'030&;',/(' </53'./' A*&(' .2*!(' 2&!(' 32/(.' &41' ./';*.'!.'>(/A' A2*4' .2*5' &..&!4*1' .2*' &>*' /,' (' .' .2*43' 1/A4' ./' .2*' *(3!&4' &(3' .2*' 2&!(' A&3' A/(4';/4>' &41' ,&3.*4*1' 07' !4./' &' D4./' & ! ' <5' &' 4**1;*' !4' .2*' ,/(6' /,' &' >(&332/77*(' 4' ;&.*(' .!6*3' 2/A*=*(' .2*' .2*4!&4' </53' 2&1' .2*!(' 2&!(' -0.'A2*4' .2*5' <*-&6*' (

A/0;1' 3/6*.!6*3' A*&(' &' 4*&.;5' -0.' <*&(1' &41' /4;5' 6*4' /=*(',/(.5' A/0;1' 32&=*' /" ;*.' .2*' <*&(1'>(/A' A&3'&' 3!>4' /,' 6/0(4!4>' 4' .2*' ,!(3.2&;' /,' .2*' @41'-*4.0(5' .2*" *67*(/(' &1(!&4' <(/0>2.',/!;' <*&(13' !4./' ,&32!/4' &>&!4" &41' !,' A*' 6&5' .(03.' .2*" -/!43' !.' -/4.!40*1' &6/4>' 2!3' 30--*33/(3' A!.2' ,*A' *0-*7.!/43' 04.!;' /43.&4.!4*' (/6' 2!3' .!6*' 2/A*=*,' .2*' *67*(/(3' &77*&(' &;&6/3.'"A!.2/0.' *0-*7.!/4' A!.2/0.' &' <*&(1

2*' <*&(1' A&3' (*6/=*1' 4/.'/4;5' A!.2' (&Q/(3' &41' 3-!33/(3' <0.' A!.2' .A**Q*(3' &41(

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!. A&3 .2 *3.&<;!32*1 -03./6 ./ -0. .2
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1*6&41 &(/3 ,/(<&(<*(3 7&(. /, A2/3
<03!4*33 !. A&3 ./ .(!6 .2 4&!;3 (*6/=
A&(.3 &41 3/ /4 2 <&(<*(3 32/73 A*(
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2 (**D A/6*4 ./ K01> <5 *0!3.!4>
6/4066*4.3 ,/;;/A*1 &4 *0.! /(1!4&(5
=&(!*.5 /, ,&32!/43 8,!> $ X " 9 2 7/!4.
3**63 >*4*(&;;5 ./ 2&=* <**4 ./ -/=*(.2
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-/66/4*3. 6/1*3 /, A*&(!4> .2 2&!(A&3
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;*. !.3!67;5 2&4> 1/A4 (,&3.*4 !. !4 &
D4/.A!.2 &<&41 &41 &4**1;* 2 <&413
/,-;/.2 /(;*&.2*(A/041 (/041 .2 ,(/4.
/, .2 2*&1 ./ ,&3.*4 .2 ,(/4. &41 <&-D
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&41!-(&,. O&67;*3 /, 2&41!-(&,. &7F 7;!*1 ./ .2* /(1!4&(5 4**13 /, ;!,* /--0(!4 .2* 65.2!-&; &>*3 /, (**-* 6/4> .2* >/13 /, ;5 6703 *72&*3.03 (*7(*3*4.3 .2!3 D!41 /, !4103.(5 &41 .2* /;1*3. -(&,.36*4 &(* (*7(*3*4.*1 &3 1!=!4* <*!4>3 &77*&(!4> /4 *&(.2 &3 !4 .2* !43.&4-* /, .2* 1&*&4 &-.5;!&41 .2* *;-2!4*3 !4 (*.* 4 .2* /6*(!- 7/*63 A2!-2 &(* .2* 7(/10-.!/4 /, &4 &>* ,&!(;5 &1=&4-*1 !4 -0;.0(* .2* 406<*(/, -(&,.36*4 7(/7*(;5 3/ -&;;*1 !3 =*(5 36&;; & &) 2* /4;5 /4*3 6*4.!/4*1 &(* <0!;1*(3 -&(7*4.*(3 7/..*(3 &41 A/(D*(3 !4 ;*&.2*(&41 6*.&; 2* 1*=*;/76*4./, .2* 6*-2&4!-&; &(.3 !4 (**-* A&3 !6 6*43*;5 !41*<.*1 !4 &4-!*4. .!6*3 ./ ,/(*!>4 !4,;0*4-* *37*-!&;;5 .2&. /, .2* &3. ," ,/(&3.*(4 -!=!;!Q&.!/4 A&3 ,&(/;1*(.2&4 *;;*4!- 2* >(*&.*(7&(. /, .2* .(&1* -&((!*1 /4 !4 (**D A&.*(3 A&3 !4 .2* 2&413 /, .2* 2/*4!-!&43 &41 !. A&3 -/43*:0*4.;5 2/*4!-!&4 6&40,&-.0(* A2!-2 .2* *;;*4*3 .//D &3 & 6/1*;, /(!6!.&./4 3/ 3/4 &3 .2*5 .2/0>2. /, A!1*4!4>.2* 372*(* /, .2*!(/A4 !4103F .(!*3 &41 <(!4>!4> .2*6 ./ 7*(,*-.!/4 !4-* .2* ?.2 -*4.0(5 (/(.2*(*&</0.3 .2* 1*,;4!.* !67(*33 /, 3!&.!-6&40,&-.0(* 1!3&77*&(3 &41 (**D .(&1* 3077/(.*1 <5 & (&7!1;5 1*=*;/7!4>& (. .&D*3 !.3 /A4 .!6** /. .2&. !. ;/3. &;; -/4.&-. A!.2 B/(*!>4 A/(D ,/(4/. /4;5 1!1 .2* -/;/4!*3 D**7 07 &4 &-.!=* -/6604!-&.!/4 A!.2 .2* 4/4" *;;*4!- A/(;1 <0. ,/(*!>4 -(&,.36*4 .//D 07 .2*!(7*(6&4*4. (*3!1*4-* !4 (**D ./A43 30-2 &3 .2*43 &41 /(!4.2

&40&; ;&</0(;!D* *=*(5 ;0-(&.!=* /--0F 7&.!/4 A&3 >*4*(&;;5 2*;1 !4 ;/A *3.**6 &6/4> .2* (**D3 &41 *37*-!&;;5 &6/4> .2* /(!&4.(!<*3 0. .2!3 3.&.* /, /7!4!/4 603. 2&=* >(/A4 7 -/67&(&.!=*;5 ;&.* &3 .2*(* !3 4/. (&-* /! !. !4 /6*(/(*3!/1 4 .2* -/4.(&(5 .2* /6*(!-7(!4-*3 1/ 4/.".2!4D !. <*4*&.2 .2*6 ./ 041*(.&D* .2* A/(D /, -(&,.36*4 4 ;&.*(.!6*3 A* 41 .2* ,(** -!.!Q*43 /, 6&45 3.&.*3 *4.!(*;5 1*-;!4!4>& &;;6&40&; ;&</0(4 7&(.& ,/(!43.&4-* .2* 2&41!-(&,.3 A*(* /4;5 7(&-.!3*1 <5 .2* 1 &41 2*;/.3 &41 6*-2&4!-3 A*(* *0-;01*1 ,(/6 -!=!- (!>2.3 . .2*43 &;; -!.!Q*43 A*(* *:0&; !4 .2* *5*3 /, .2* ;&A &41 !. A&3 *07(*33;5 ,/(F <!11*4 ./ (*7(/&-2 &6&4 ,/(.2* -2&(&-.*(/, 2!3 =/-&./4 A2&.*=*(!. 6!>2. <* 2* 7//(*(-!.!Q*43 A*(* -/67*;;*1 <5 ;&A ./ 7(&-.!3* 3/6* .(&1* /(/.2*(&41 !. A&3 :0!. 030&; ./ *4>&>* !4 -/66*(-* 0. 3.!;; !4 .2* /7!4!/4 *=*4 /, .2* A!3*3. .&.*36*4 6*-;!&4!-&; ;&</0(A&3 7253!F -&;;5 !4.*;;*-.0&;;5 &41 6/(&;;5 7(K01!F -!&; 2* 7*..5 &40!*.!*3 A2!-2 !.!4=/;=*1 A*(* 2*;1 ./ <* !4-/67&.!<;* A!.2 .2* ./4* &41 -0;.0(* 1*6&41*1 <5 .2* &-.!=* ;!,* /, .2* -!.!Q*4 A!.2 .2* :0&;!.!*3 A2!-2 A/0;1 *4&<;* 2!6 ./ K/!4 !4 1*;!<*(&./!4 /4>(*&. &,,&!(3 /, 3.&.* &41 -/410-. 70<;!- <03!4*33 A!.2 2/4*3B 041 !4.*;;!>*4-* .' A&3 .2/0>2. !4 ,&-. .2&. &;; 6&40&; ;&</0(32/0;1 <* ;*,. ./ 3;&=*3 &41 ,(**16*4 0-2 /, .2* 6*-2&4!-&; !4103.(5 /, .2*43 A&3 &-/(1!4>;5 !4 .2* 2&413 /, 3;&=*3 ,(**16*4 &41 (*3!1*4;&!*43

2* 3;&=*3 A/(D*1 3/6*.!6*3 /4 .2*!(/A4 &--/04. 7&5!4>& -*(.&!4 &6/04./, .2*!(*&(4!4>3 ./ .2*!(6&3.*(3/6*.!6*3 *4.!(*;5 ,/(.2* 7(/,!.* /, .2*!(6&3.*(3 .2* ;&..*(.&D!4>& 4/ &-.!=* 7&(. !4 .2* <03!F 4*33 3/6*.!6*3 .2*5 &-.*1 &3 &33!3.&4.3 ./ .2* -!.!Q*43 &41 (*3!1*4.* &;!*43 A2/ -&((!*1 /4 & <03!4*33 /, .2*!(/A4 0. !4 !4103.(!&;-!.!*3 .2* >(*&.6&33 /, 3;&=*3 A&3 *67;/5*1 !4 ,&-./(!*3 .2* /A4*(3 /, A2!-2 ;*,. .2* 307*(!4.*41*-* /, .2* A/(D ./ & 2*&1 6&4 030&;;5 2!63*;, & 3;&=* /(,(**16&4 (*3*(=!4>, /(.2*63*;=*3 /4;5 .2* >*4*!&; 6&4&>*6*4. &41 .2* ,!4&4-!&; -/4.(/; /, .2* <03!4*33 2* !66*43* 6&33*3 /, 3;&=*3 D*7. &. .2*43 &41 /(!4.2 &41 !4 >;4& &41 2!/3 32/A 2/A 406*(/03 .2* ,/-./(!*3 A*(* !4 !4103F .(!&; -!.!*3 2* 6&40,&-.0(* /, 6*.&; A&(*3 7/..*(5 &41 /.2*(/<K*-.3 A2!-2 -/0;1 4/. <* 6&1* &; 2/6* A&3 .2* 6/3. *0.*41*1 /, &;; 2* 1!=!3!/4 /, ;&</0(D*7. 7&-* A!.2 .2* 1*=*;/76*4. /, .(&1* &41 6&40,&-.0(* 2!3 ,&-. 6&5 7&(.;5 *07;&!4 2/A !. !3 .2&. !4 37!.* /, .2* -/67&(&.!=* 3!67;!-!.5 /, .2*!(.//;3 .2* (**D -(&,.36*4 &..&!4*1 *37*-!&;;5 !4 A/(D3 /, &(. 30-2 &16!(&<;* 7*(,*-.!/4 /, .*-24!-&; 1*, /!2

4 &4-!*4. (**-* !. A/0;1 &77*&(.2&. .2*(* A*(* 4/ .(&1*">0!;13 &41 -/7/(&.!/43 !4 .2* 7(/7*(3*43* 0. &6/4> .2* /6&43 .2*3* 3/-!*.!*3 A*(* &4 !43.!.0./!4 / /, /;1 3.&41!4>' .2* ,/041&.!/4 /, A2!-2

A&3 &..(!<0.*1 ./ D!4> 06& ;!D* .2&./ /, 6&45 /.2*(3 A2!-2 2&1 *0!3.*1 ,(/6 .!6* !6 6*6/(!&; 2* >0!;13 /,-(&,.36*4 # R 1 !4-;01*1 ,;0.*"7;&5*(3 >/;1F 36!.23 -/77*(36!.23 -&(7*4.*(3 ,0;;*(3)3&# 7/..*(3 &41 32/*6&D*(3 2*(* A&3 /(!>!4&;;5 & 4!4.2 1 ! A2!-2 *6" (<&-*1 &;; 4/. !4-;01*1 !4 .2* /.2*(* *!>2.* <0. !4 ;&.*(.!6*3 .2*3* A!.2 .2* 4*A !4103.(!*3 .2&. >(&10&;;5 &(/3* -/6<!4*1 !4./ 7*-!&; >0!;13 2* /<K*-. /, .2* >0!;13 041/0<.*1;5 A&3 ./ 6&!4.&!4 &4 04<(/D*4 .(&1!./ &41 ./ A&.-2 /=*(.2* /6 6/4 !4.*(*3. 0. .2*(* **63 ./ 2&=* <**4 4/ -/6 70;3!/4 *0*(-!3*1 6&D* 6*4 K/!4 &>0!;1

2* /6&43 ;!D* .2* KBD3 3**6 ./ 2&=* .2/0>2. .2&. .2*(* !1% 3/6*.2!4> /<K*-.!/4&<;* !4 6*-2&4!-&; ;&</0(" <0.!. !3 04-*(.&!4 A2*.2*(.2* 7(*K01!-* A&3 /, (*&;;5 /;1 3.&41!4> . 603. <* (*6*6F <*(*1 .2&. .2* *(=!&4 -/43.!.0.!/4 .2(*A* .2* <0(1*4 /, 6!;!.&(5 3*(=!-* *4.!(*;5 07/4 .,;* ;&41/A4*(3 203 .2* -(&,.36*4 A2/ &3 &(0;* 2&1 4/ ;&41*1 7(/7*(.5 A*(* 7(&-.!-&;;5 .2/0>2 4/. ;*>&;;5 *0-;01*1 ,(/6 .2* &(65 (/6 .2!3 -!(-063.&4-* 6&5 2&=* &(!3*4 .2* ;/A *3.!6&.!/4 !4 A2!-2 6&40&; !4103.(5 A&3 -/43*:0*4.;5 2*;1 . A&3 7&(.;5 /A!4>./ .2!3 3.&.* /, /7!4!/4 .2&. 7*&3&4.3 A2*4 .2*5 ;/3. .2*!(;&41 A*(* 04A!;;!4> ./ A!4 .2*!(<(*&1 &3 6*-2&4!-3 &41 7(*,*((*1 ./ &1/7. .2* 1*7*41*4. 7/3!.!/4 /, -;!* .3 ;!=!4> /4 70<;!- &;63 &41 .2* <(!<*3 /, -&41!&.*3 &. *;*-.!/43 4 /6* &3 !4 (**-* .2* 2&41!-(&,.3 .*41*1 6/(* &41 6/(* ./ 7&33 !4./ .2* 2&413 /, 3.(&4>*(3 ,(**16*4 &41 3;&=*3 4 A*&;.25 2/03*3 6/3./, /, .2* 4*-*33&(5 6&40&; A/(D A&3 1/4* <5 3;&=*3 A2/3* .&;*4.3 A*(* /,.*4 &3 !4 (**-* .0(4*1 ./ &--/04. <5 .2*!(6&3.*(3 2*5 = *(* /,.*4 *67;/5*1 !4 6&40,&-.0(*3 &41 *37*-!&;;5 !4 30-2 <(&4-2*3 /, !4103.(5 &3 -/0;1 <* -/6<!4*1 A!.2 &>(!-0;.0(* .!;*F 6&D!4> ,/(!43.&4-* 7/..*(5 15!4> .&4F 4!4> ,*;."6&D!4> *.- /3/-!&; 3.!>6& &..&-2*1 ./ 6&40,&-.0(* !4 /6* &45 6/(* .2&4 !4 (**-* !41**1 !4 .2* !67*(!&; &>* *=*4 .2* *67*(/(3 &41 .2* 6*6<*(3 /, .2* !67*(!&; 2/03*2/;1 A/0;1 A!.2/0. 3-(07;* !4=*3. .2*!(7(!=&.* -&7!.&; !4 !4103.(!&; 041*(.&D!4>3 /, .2!33/(. ,.*(.2* ,&;; /, .2* (6 6<;!- &41 .2(/0>2/0. .2* !67*(!&; &>* \B6* A&3 .2* -*4.(* /, .2* A2/;* -/6 6*(-!&; &-.!=!.5 /, .2* &4-!*4. A/(;1 .2/0>2 .2* /6&43 6&1* 4/ 37*-!&; -/4F .(!<0.!/4 ./ !4103.(!&; 7(/>(*33 &=!4> !4 ,/(6*(&>*3 <**4 1/6!4&.*1 <5 .(03-&4 !4,;0*4-* /6&4 !4103.(5 A&3 !4 ;&.*(.!6*3 1*7*41*4. /4 .2* &(. /, .2* &3.*(4 A/(;1 &41 *37*-!&;;5 /, (**-*

&441 &(.2&>!4!&4 A2/ &</0. VNN 041*(./(D &=/5&>* /, 1!3-/=*(5 &;/4> .2* A*3. -/&3. /, ,(!-& &41 P64*.(&.*1 <*5/41 .2* *41&! * 70. 07 &. &<;*. !4 .2* .*67;* /, *;& .2* 2/4*!-!&4 ;&4>0&>* (**D .(&43;&.!/4 /, .2!3 1/-06*4. # " " " , /, 04-*(.&!4 1&.* 3.!;; 30(=!=*3 &41 !3 /4* /, .2* /;1*3. 6*6/(!&;3 /, &4-!*4.*>*/>(&72!-&; 3-!*4-* &(/

&(6 4,& 2* 1&0>2.*(/, (3 &41 72(1;. &41 A!,* /, &1603 & " &) . 2*(6&((!&>* &;; .2* >/1 A*(* 7(*3*4./4 .2* -(/7/;!3/, 2*<*3 &41 /,,*(*1 26 .2*!(A*11!4> >!,.3 &1F 603 >&=* 2*(&-/3.;5 >&(!4*4. &41 & 4*-DF ;&-* .2* A/(D6&432!7 /, *72&*3.03 A2!-2 2* 2&1 (*-*!=*1 ,(/6 72(/1!.* /(8&-/(1F !4> ./ &4/.2*(&--/04.9 ,(/6 0(17& 2*3* >!,.3 3/ .2* 3./(5 (043 2&1 *=*(5F A2*(* .2* ,&.&; 7(/7*(.5 /, 3.!((!4> 07 3.(!,* &41 <;//132*1 . A&3 A!.2 .2*6 .2&. /;54*!-*3 -/((07.*1 (!725;* A2/ 1(/=* 2*(203<&41 ./ 2!3 1*3.(0-.!/4 !B .2* 2*<&4 &(&41 A&3 60(1*(*1 K4 (*=*4>* <5 2*(3/4 ;-63*/4 , A&3 ,/(.2*!(3&D* .2&. ;-6&*/4 &41 2*>*43 &41 2!3 3/43 A*(* 3;&!4 # -&,) &41) 2* K*A*;3 A*(* &. :*4>.2 1*7/3!.*1 <5 .2* 3/43 /, ;-6&*/4 !4 .2* 3&4-.0&(5 /, *;72! --/(1!4>./ &;&.*(3./(5 2&5;;03 &;*&1*(/, .2* 2/-!&43 !4 .2* A&(&>&!43. 2!;!7 /, &-*1/4 -&((!*1 /,, &6/4> /.2*(.(*&30(*3 .2* 4*-D;&-* /, &(6/4!& &41 >&=* !. ./ 2!3 6!3.(*33 .2* A!,* /, (!3. 4/, 8 .& 0. 2*(5/04>*3. 3/4 3*.,!(* ./ .2* 2/03* !4 &, !. /, 6&14*33 &41 .2* 6/.2*(A!.2 .2* 4*-D;&-* &3 -/430 6*1

&(6 . 8H (*>0;&./(3 I9 </&(1 -/43!3.!4> /, .A*4.5 6*6<*(3 &. 7&(.&* 7(/<&<;5 & D!41 /, 2!>2*(7/;!-* A2/3* 10.5 !. &3 ./ 6&!4.&!4 & 307*(=!3!/4 /=*(.2* 1!3.(!-.3 !42&<!.*1 <5 .2* 1 ,.*(.2* *;/7/44*3!&4 &(.2* 4&6* A&3 >!=*4 ./ .2* /,,!-!&;3 A2/ A*(* 3*4. !4./ .2* -/4:0*(*1 -!.!*3 ./ -/6 6&41 .2* >&((!3/43 &41 ./ 3** .2&. .2* /;!>&(-2!-&; -/43.!.0.!/4 A&3 6&!4.&!4*1

&(7&3.06 ? >&6*3 A!.2

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&(71/-!..V48 &,*(639 (**D 3-2/;&(/, ;*0&41(!& A2/ ;!=*1 7(/<&<;5 !4 .2* @41 -*4.0(5 * A&3 .2* &0.2/(/, & ;*0!-/4 ./ .2* .*4>(*&. ..!-/(&./(3 2!-2

!&3 30(=!=*1 .2/0>2 !4 &=*(5 ,(&>6*4.&(5 ,/(6 .-/4.&!43 !4 &;72&<*.!-&;/(1*(4/.*3 /4 .2 6&..*(3 &41 7*(3/43 6*4" %.!/4*1 <5 .2 /(&./(3 %A!.2 *07;&4&.!/43 /, .2 .*-24!-&;*07(*33!/43" .203 ,/(6F !4>& (!-2 3./(* /, =&;0&<;* !4,/(6&.!/4 /4 6&..*(3 /, 2!3./(5 ;!.*(&.0(* &41 .2 -/4F 3.!.0.!/4 &41K01!-!&;353.*6 /, .2*43

&(75! 2 &(7!*3 A*(* /(!>!4&;;5 .2 >/11*33*3 /, .2 3A**7!4>3./(6 356F </;!-/, .2 3011*4 &41 ./.&;1!3&77*&(&4-* G/, 6*4 /6*(/4;5 4&6*3 /4 /, .2*6 /1&(>* /(.2 3A!.",//.*1 A2/ !4 .2 32&7* /, & 6&(* </(* ./ L 725(03 .2 2/(3*3 /, -2!;;*3 4 *3!/1 .2 &(7!*3 &77*&(&3 A!4>*1 >/11*33*3 A!.2<*&0.!,0; 2&!(1&0>2.*(3 /, 2&06&3 &41 ;*-.(& 3!3.*(3 /, (!3 A!.2 .2 4&6*3 /, *;;/ &41 D57>.* 4 .2 ;&.*(3./(5 .2*!(406<*(!4-(*&3*1 .2*!(4&6*3 <*!4> >;;<7.!3 D5.2 * !D</.2/* &41 ;3*4/ 2*5 &(* 4/A (*7(*3*4.*1 &3 2&;,"<!(13 2&;,F 6&!1*43 &41 &3 37!(!.3 /, 6!3-2!*, 4 G.2 3./(5 /, .2 (>/4&0.3 ,/(!43.&4-* %.2*5 ./(6*4.2!4*03 <5 -&((5!4> &41 "7/;;0.!4>2!3 ,//1 .!;;.2*5 &(* 1(!=*4 /, <5 &;,.;3 &41 L*.*3 &41 *!.2*(D!;;*1 /(<&4!32*1 ./ .2 !3;&41 /, .2 .(172J1 3 A2*(* .2*5 &(* </041 /4 /&.2 ./ (*6&!4 $( ) ,!> C9

637*0 4 .(03-&4 3//.23&5*(%A2/3* ,04-.!/4 !. A&3 ./ !4.*(7(*. .2* %1!=!4* A!;,(/6 .2 *4.(&!;3 /, 3&-(!,!-!&; G=!-.!63 ./ 7(/7!.!&.* .2* &4>*(/, .2* >/13 &3 !41!-&.*1 <5 ;!>2.4!4>/(!/.2*(6&(=*;3 !41 ./ !4.*(7(*. .2*!(3!6!,!-&4-* &--/(1!4> ./ .(03-&4 ,/(60;&* 2!3 &(. 2&1 ;/4> e**4 7(&-.!3*1 !4 .(0(!& &41 A&3 (*,*((*1 "./ &1!=!4* /(!>!4 4 .2* -/0(3* /, .2* *70<;!-&4 *(& !. ,/041 &2/6* !4 .2* 7(!=&.* &41 70<;!-;!,* /, .2* /6&43 A!4F 4!4> !.3 A&5 &3 .2* 4&.!=* 7(!*3.2//13 *4.(03.*1 A!.2 3!6!;&(,04-.!/43 ;/3. !4 (*70.* (/6 .2* .!6* /, .2* D!4>3 ./ .2* *41 /, .2* (*70<;!- (3 A(* *OF 7(*33;5306 6/4*1 ,(/6 .(0(!& <5 1*-(** .2* 3*4&.* /4 .2* /--0((*4-* ;7(/1!>!*3 A2!-2 A*(* 4/.7(/=!1*1 ,/(!4 .2* /4.!F ,!-&; &41 !<5;;!4* <//D3 2*!(<03!4*33 A&3 ./ !4.*(7(*. .2* 3!>43 >!=*4 <5 ;!>2.4!4> A&3 /4;5 &77;!*1 !4 (*70<;!-&4 /6* /(.2* 70(7/3* /, &=*(.!4> .2* /6*4 7/(.*41*1 <5 .2* ,;&32 &) 0 041*(.2* 67!(* !. A&3 &;3/ 03*1 ,/(-/430;.!4> .2* ;!>2.4!4> *!.2*(D**7!4> !. /(1(&A!4> !.1/A4 (/6 &</0.2*.!6* /, .2* 04!-d &(3 (<*>&4./3*..;* !4 /6* &41 A*(* *67;/5*1 </.2 <5 7(!=&.* !01!" G=!10&;3 &41 3.&.* /,,!-!&;3 ./ &3-*(.&!4 .2* 1!=!4* A!;<5 *0&6!4&.!/4 /, .2* ;!=*(>&;; 2*&(. ;04>3 &41 -&0; /, 3&-(!,!-!&; =!-.!63 2*5 A*(* *37*-!&;;5 -/430;.*1 <5 >*4*(&;3 A2*4 >/!4> ./ A&(2*!(3-!*4-* A&3 >*4*(&;;5 2*;1 !4 2!>2 *3.**6 <0. .2* -;&33 /, + ! $ A2/ .//D 7&5 ,/(.2*!(3*(=!-*3 1!1 4/. *4K/5 3/ >//1 &(*70.&.!/4 ;&01!03 3**63 ./ 2&=* <**4 .2* ,!(3.*67*(/(A2/ !43.!.0.*1 &(*>0;&(1 /, /6&4 (-/43!3.!4> /, 3!0.5 6*6<*(3 /, *:0*3.(!&4 (&4D &41 7(*3!1* /=*(<5 &(- - " ,/(.2* (*>0;&(3*(=!-* /, .2* .&.* 2!3 R 1 -/4.!40*1 ./ *0!3. .!;; .2* <*>!44!4> /, .2* ?.2 -*4.0(5 &3.& 2* /6&4 ;&4-* 4 .2* *&(;!*(.!6*3 /, .2* &(65 .2* ,/0(,!(3. -;&33*3 !4 .2* *(=!&4 -/43.!.0.!/4 &41 !4 ;&.*(.!6*3 .2* /(2!0 !0-3. (&4D A*(* &(6*1 b5!.2 .2!3 A*&7/4 & . ;*4>.2 2/A*=*(.2* A&3 !4.(/!10-*1 ,/(.2* A2/;* !4,&4.(5 /, .2* ;*>!/4 & ! g / 1*7(!=* &3/;1!*(/, 2!3 (A&3 *:0!=&;*4./ 1*>(&1!4> 2!6 ./ .2* (&4D /, .2* < A2/ A*(* &(6*1 A!.2 K&=*;!43 <;04. (A!.2 &<0../4 &. .2* *41 &(-/4.!40*1 ./ <* 03*1 !4 ;&.*(.!6*3 &3 &6!;!.&(5 1*-/(&./4 2* (!41**1 A&3 *67;/5*1 !4 6&45 356</;!-&; -/44*0!/43 2* = 3 /(!43.&4-* 20(;*1 & <;/!1"3.&!4*1 (!4./ .2* *4*65 3 .*((!./(5 &3 &./D*4 /, 1*-;&(&.!/4 /, A&(&41!, &>*4*(&; 1*=/.*1 2!3 ;!,* /(2!3 &(65 2* 3./07 &3 & 4</; /, ;*>&; /A4*(32!7 A2*4 .2* -*43/(,&(6*1 /0. .2* .&0*3 A2*4 3.&.* 7(/7*(.5 </.5 ,/(!43.&4-* A&3 3/;1 &. 7(!=&.* &0-.!/43 &2*4 * &;*1 (" &41 &. .2* 3!..!4>3 /, .2* -/0(. /, .2* " A2!-2 2&1 ./ 1*F -!1* /4 :0*3.!/43 /, 7(/7*(.5 *<* &0>2.*(/, L*03 &41 *(& >/11*33 /, *.*(4&; 5/0.2 2* A&3 (*7(*F 3*4.*1 &3 .2* 2&416&!1*4 /, .2* >/13 /(A2/6 32* 7/0(3 /0. .2*!(4*-.&(&41 .2* -/43/(. /, *(&-;*3 &,.*(2!3 &7/.2*/3!3 2* A&3 A/(32!77*1 A!.2 *(&-;*3 !4 ;-5/4 &41 2;;03 *37*-!&;;5 041*(.2* 4&6* ,.4B6`1* /(!& 2* A&3 (*7(*F 3*4.*1 &3 ,(**!4> 6*4 ,(/6 -2&!43 &41 </413 &41(2*((!.*3 A*(* -*;*<(&.*1 A!.2 04(*3.64*1 6*((!6*4. 2* /6&43 !1*4.!,!*1 *<* A!.2 " .2* 7(3/4!"

G,!-&.!/4 /, 5/0.2,0; 6&42//1 3 (*7(*F 3*4.!4> .2* *.*(4&; 5/0.2 /, .2* /6&4 .&.* 2&1 &-2&7*; /4 .2* &7!./; !4 .2*, (/4.-/0(. /, .2* .*67;* /, !4*(=& &41 !4 ;&.*(.!6*3 & .*67;* /, 2*(/A4 !4 .2* -!.5 A&3 ./ 07!.*(&41 0=*4.&3 .2&. 2153 /,,*(*1 7(&5*(/4 .2* &7!./; A2*4 .2*5 70. /4 .2* /1 70..!4> &7!*-* /, 6/4*5 !4./ .2*!(.(*&30(5 -&.3 03 (**D ' 1 1 /, -2(/4!-;*(2/6 /, & 4/<;* ,&6!;5 &. !;*.03 &</0. VVN ' (4 2!3 5/0.2 2* .(&=*;;*1 A!1*;5 !4 0(/7* &41 3!& &3 A*;; &3 !4 >57. . .2* .!6* /, .2* /4!&4 (*=/;. 2Y A&3 !4 2!3 4&.!=* -!;5 &41 >&=* 2!3 -/04.(56*4 .2* A!3*3. -/043*;3 <0. !4 =&!4 ,.*(.2* 3077(*33!/4 /, .2* (!3!4> 2* 30--**1*1 <5 2!3 .&-. &41 6&4&>*6*4. !4 /<.&!4!4> 3/6* &;;*=!&.!/4 /, .2* 2&(1 6*&30(*3 &1/7.*1 <5 .2* *(3!&43 * 1!*1 &</0. CU? " 2* &4-!*4. -(!.!-3 &33!>4*1 2!6 &2!>2 7;&-* &6/4> .2* (**D 2!3./(!&43 A2/ 7(*-*1*1 *(/1/.03 .2/0>2 7(/4/04-!4>2!6 !4,*(!/(./ .2* ;&..*(! .A/ A/(D3 /, A2!-2 /4;5,(&>6*4.3(*6&!4 A*(*\ 8$9 1*3-(!7F .!/4/, .2**!=*1 &32&(* !4 .2* 2*&=*4 *&(.2 &41 /-*&4 2* !3 !4=/D*1 &.;3&-(!,!-*3 ,/(32* -&4 >!=* /(A!.22/;1 2*(<;*33!4> !4 1&!;5 ;!,* !4 A&(!4 -/4.*3.3 4 .2* 3*& !4 .2* 204.!4> ,!*;1 !4 .2* *10-&.!/4 /, -2!;1(*4 &41 !4 .2* .*41!4> /, -&..;* 203 32* &77*&(3 &3 & 7*(3/4!,!-&.!/4 /, .2* 1!=!4* 7/A*(&41 !3 .2* !43.(06*4.*.2(/0>2 A2!-2 .2* >/13 *,,*-. .2*!(A!;; .2/0>2 .2*63*;=*3 ,/(&A&5 4 ;&.*(.!6*3 32* A&3 -/4,03*1 A!.2 *(3*72/4* .2* :0**4 / , .2* ;/A*(A/(;1 /(&33/-!&.*1 A!.2 2*(/6*.!6*3 32* A&3 (*>&(1*1 &3 .2* >/11*33 / , .2* 6//4 /(&3 (. 6!3 3/6*.!6*3 32* A&3 !1*4.!,!*1 A!.2 , /(*!B 1*!.!*3 /, .2* 3&6* D!41 *!4> -/4-*!=*1 &3 &>/11*33 /, 4!>2. &41 /, .2* ;/A*(A/(;1 32* A&3 &3 .!6* A*4. /4 .(&43,/(6*1 !4./ &1*!.5 /,>2/3.3 &41 6&>!- 2* A&3 (*7(*3*4.*1 &3 2&04.!4> -(/33A&53 &41 >(&=*3 &--/6F 7&4!*1 <5 .2* 1/>3 /, .2* .50 A!.2 .2* %34!(!.3 /, .2* 1*&1 &41 .(//73 /, 37*-.(&; ,/(63 !4 2*(.(&!4 2* ;*413 7/A*(,0;&!1 ./ &; 6&>!-&; !4-&4.&.!/43 &41 A!.-2*3 A/(D & *4-2&4.*(3 &41 *4-2&4.(*33*3 &(* 2*(1!3-!7;*3 &41 !1! * *1*& !4 7&(.!-0;&(!3 (*>&(1*1 &3 2*(3*(=&4. 2* A&3 A/(32!77*1 !4 7(!=&.* &41 !4 70<;!- !4 6&45 7;&-*3 ,/(!43.&4-* &!4/.2(&-* 2*33&;5 *64 3 .2*43 &41 ! >!4& *(

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8 /6*Y &7!./;!!!* 03*06 9

!6&>*3 A*(* 3*.07 !4 .2* ,(/4./, 2/03*3 &41 <5 .2* (/&1"3!1* A!.2 &;.&(3 !4 ,(/4./, .2*6 &41 &(//,&</=* .2*6 4 .2* ;&3. 1&5 /, .2* 6/4.2 A2!-2 A&3 3&-(*1 ./ 2*(/,,*(!4>3 *(* 6&1* ./ 2*(!4 .2* -(/33A&53 /, *>>3 ,!32 41 /4!/43 2* =!-.!63 3&-(!,!-*1 ./ 2*(A*(* 5/04> 1/>3 &41 <;&-D 32*";&6<3 &41 2/4*5 4 A/(D3 /, &(.32* !3 030&;;5 7/(.(&5*1 !4 .2(** ,/(63(*7(*3*4.*1 <5 .2(** 3.&.0*3 3.&41!4> 2&-D ./ <&-D &-2 ,/(6 2&3 !.3 37*-!&; &..(!<0.*3 ./(-2*3 ! : 1&>>*(3 34&D*3 &41 1/>3 4 .2* 6 1 " I (/ *(>J6<4 32* &77*&(3 A!.2 & 1!,,*(*4. A*&7/4 !4 2*(.2(** (!>2. 2&413 & ./(2 & 3A/(1 &41 & ;&4-* # & ? -; ! ^. 9

,!-,!./6<* 8 (**D9 2* /(!>!4&; 6*&4F !4> /, .2* A/(1 A&3 &3&-(!,!-* /, &2041(*1 /"0*4 <0. !4 *&(;5 .!6*3 !. A&3 &77;!*1 >*4*(&;;5 ./ &45 >(*&. 3&-(!,!-* A!.2/0. &45 1*&* !.2*(/,/0*4 /(&1*,!4!.* 406<*(0-2>(*&.3&-(!,!-*3 A*(* 37*-!&;;5-/66/4 !4 .2* A/(32!7 /, L*03 &41 *(& -J.14-2*!(3 8H .2* 2041(*1"2&41*1 /4*3 I9 4 *3!/1 .2*5 &(* .2(** >!&4.3 *&-2 A!.2 & 2041(*1 &(63 &41 ,!,.5 2&413

3/43 /, (&403 &41 &*& 2*!(4&6*3 &(* (!&(23 /..03 &41 5*3 A!4> ./ .2*!(2/3.!;* &..!.01* ./ 2!6 .2*!(,&.2*(D*7. .2*6 !67(!3/4*1 !4 .2* </A*;3 /, .2* *&(.2 0. /4 .2* &1=!-* /, &*& .2* >/13 /, ;56703 3066/4*1 .2*6 ,(/6 .2*!(7(!3/4 ./ ;*41 &33!3.&4-* &>&!43. .2* !.&23 &41 &,.*(.2*!(=!-./(5 3*. .2*6 ./ A&.-2 .2* !.&43 A2/ 2&1 <**4 .2(/A4 !4./ &(F .&(03 /6*(6*4.!/43 (!&(*03 -&;;*1 <5 6*4 >&*/4 &3 .2* 3/4 /, /3*!1/4 &41 6!>2.!*(.2&4 2!3 ,&.2*((!&(*03 A&3 3066/4*1 ./ .2* &!1 /, L*43 <5 2 .!3 A2*4 *(& /3*!1/4 &41 .2 4* A*(* A!32!4> ./ <!41 2!6

-./(2 *;1*3. 3/4 /, (!&6,.3 &41 *-&<* 203<&41 /, 41(6&-2* &41 ,&.2*(; 3.5D4&0 4 /6*(2* !3 .2* 6/3. 7(/6!4*4. ,!>0(* &6/4> .2* (/K&43 &3 "-2!;;*3 !3 &6/4> .2* (**D3 &41 !3 *=!1*4.;5 &, &=/0(!.* -2&(&-.*(A!.2 .2* 7/*. * 2&3 &;; .2* 2!>2*3. :0&;!.!*3 /, ! 2*(/ 0432&D*4 37!(!. 7*(3/4&; -/0(&>* !41 A!3* K01>6*4.# <0. 2* !3 &;3/ & 6/3. !,,*-.!/4&.* 3/4 &41 .2* .*41*(*3. /, ,&.2*(3 &41 203<&413 2!3 .(&!. !3 6/3. ./0-2!4>;5*02!<!.*1 !4 .2* -*;*<(&.*1 3-*4* !4 .2* 3!0.2 ;!&1 A2*(* 2* .&D*3 ;*&=* /, 41(/6&-2* /(*/=*(2* !3 &, &=/0(!.* /, .2* >/13 *37*-!&;;5 /, 7/;;/ * -;*&(;5 ,/(*3** 3 2!3 /A4 1*&.2 &41 .2* 1*3.(0-.!/4 /, 2!3 4&.!=* -!.5# <0. 2* 1/*3 4/. &;;/A .2* .2/0>2. ./ 044*(=* 2!3 -/0(&>* &41 ,/(-* ,/(& 6/6*4. 2* (/K&43 ;/=* &41 (*=*(* 2!6 &3 .2* 32*7F 2*(1 /, 2!3 7*/7;*# 2!3 *4*6!*3 ,*&(&41 (*37*-. 2!6 &41 *=*4 -2!;;*3 -&44/. 6**. 2!6 A!.2/.3/6* &77(*2*43!/4 * !3 &;A&53 ./ <* ,/041 A2*(* .2* <&..;* (&>*3 6/3. ,0(!/03;5 &41 2* 1/*3 4/. 2*3!.&.* ./ 6**. .2* -2!*,*3. 2*(/*3 /, .2* (**D3 !4 3!4>;* -/6<&. K&O .2* 3/4 /, *;&6/4 !3 2!3 *37*-!&;, /* 4 .2*!&<3*4-* /, -2!;;*3 2* (*10-*3 .2* (**D3 ./ .2* 1!(*3. 3.(&!.3 3./(63 .2*!(1*,*4-*3 &41 3*.3 .2*!(32!73 /4 ;!(* &.(/-;03 A2/ /77/3*3 2!6 2* 3;&53 A!.2 .2* &!1 /, 7/;;/ 0. 2!3 1*3.!45 &. ;*4>.2 /=*(F .&D*3 2!6 4 37!.* /, .2* *4.(*&.!*3 /, 2!3 7&(*4.3 &41 2!3 A!,* 2* >/*3 /0. ./ 6**. -2!;;*3 !4 2!3 A(&.2 * !3 3011*4;5 3*!Q*1 A!.2 .2* &>/45 /, .*(((/(2!3 .*((!<;*" ,/* -2&3*3 2!6 .2(** .!6*3 (/041 .2* A&;;3 /, .2* -!.5# L*03 6/0(43 ,/(2!6# <0. A2*4 2!3 ;!,* &41 .2&. /, 2!3 *4*65&(* A*!>2*1 !4 .2* <&;&4-* *-./(3 3-&;* 3!4D3 7/;;/ ;*&=*3 2!6 &41 2* ,&;;3 <5 .2* 37*&(/, -2!;;*3 <*,/(* .2* *5*3 /, 2!3 7*/7;* -2!;;*3 ,;!4>3 2!3 -/(73* !4./

.2* 103. !4 ,(/4. /, &.(/-;03 <!*(./ <* 1*=/0(*1 <5 1/>3 &41 <!(13 0. 72(/F 1!.* &4/!4.3 .2* </15 A!.2 &6<(/3!& &41 .203 3&=*3 !. ,(/6 -/((07.!/4 -2!;;*3 1(&>3 !. .2(** .!6*3 <*2!41 2!3 -2&(!/. (/041 .2* >(&=* /, &.(/-;03 <0. 7/;;/ 7(*3*(=*3 !. ,(/6 60.!;&.!/4 .;*4>.2 &. .2* -/6 6&41 /, L*03 -2!;;*3 1*;!=*(3 07 .2* </15 ./ *-./(3 &>*1 ,&.2*(./ <* ;&!1 /0. !4 .2* -/0(. /, .2* 7&;&-* &41 &,.*(A&(13 <0(4. /4 &,04*(&; 75(* 4 ;&.*(.!6*3 *-./(A&3 A/(32!77*1 &3 &2*(/ <5 .2* !42&<!.&4.3 /, ;!06 A2/ /,,*(*1 3&-(!,!-*3 &.2!3 >(&=*

-2<& 8 (. 2* 1&0>2.*(/, .2* 2(5>!&4 B6&3 /(&--<(1!4> ./ &4/.2*(3./(5 /, !33*03 &41 A!,* /, (!&6 # &) ,.*(.2* ,&;;* /, (/532* A&3 6&1* & 3;&=* &41 ,*;;* ./ .2* ;/. /, 1533*03 *(3/4 <;51/(03 2&1 <**4 3;&!4 <5 ?;56`3.?(D!4> /, 2(&-* /4 A2/6 32* .//D =*4>*&4-* <5 70..!4> /0. 2!3 *5*3 /4 .2* 2(&-!&4 -/&3. 4 .2!3 32* A&3 -2&4>*1 !4./ & 1/> &41 .2(*A 2*(3*;, !4./ .2* 3*& *(./6< 3*(=*1 &3 &;&41 6&(D ,/(3&!;/(3

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*>*6/45 8 ((1 " /(H ;*&1*(F 32!7 I9 2!3 A&3 .2* (**D 4&6* ,/(.2* 307(*6&-5 &330 6*1 <5 & 3!4>;* 3.&.* !4 & -/4,*1*(&-5 /, 3.&.*3 &41 A!.2 !. .2* 1!(*-F .!/4 6/(* /(;*33 &<3/;0.* /, .2* <03!4*33 /, .2* -/4,*1*(&-5 4 .2* ;&4>0&>* /, .2*4!&4 ;&A (1 6*&4. .2* 7(*3!F 1*4-5 !4 .2* -/0(.3 A2!-2 <*;/4>*1 !4 1!,,*(*4. -&3*3 ./ 1!,,*(*4. /,,!-!&;3 2*!(<03!4*33 &3 ./ (*-*!=* -2&(>* 6&D* .2* &((&4>*6*4.3 ,/(.2* .(!&; &41 7(*3!1* A2!;* !. A&3 >/!4> /4

*>`3,&3 (**D (&./(</(4 !4 &B*3!& /4 /04. !75;03 !4 .2* ,!(3. 2&;, /, .2* (1 -*4.0(5 * * A&3 .2* ,/041*(/, A2&. A&3 .*(6*1 .2* 3!&.!-* 3.5;* /,/(&./(5 # - A(

*>>3;7703 8$9 4 .2*4!&4 3.&.*36&4 &41 /(&./(& -/4.*67/(&(5 /, *6/3.2*4*3 A2/3* 7/;!.!-&;* /7!4!/43 2* 32&(*1 * !3 .2* &0.2/(/, .2* 37**-2 4 (" A2!-2 A&3 ,&;3*;5 &..(!<0.*1 ./ *6/3.2*4*3

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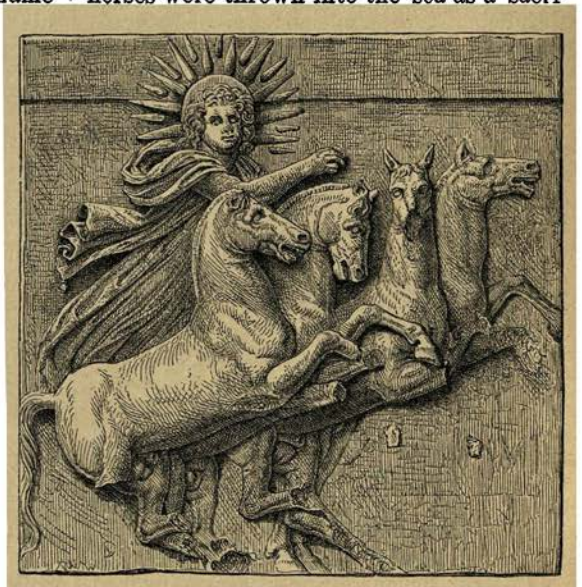
in ten books, has come down to us. Its subject is the strange story of Thĕāgĕnēs the Thessalian and Chărĭclēa, the daughter of the king of Æthiopia. This book served as a model for most of the later Greek writers of romance, and may be classed with the novel of Longus as one of the best specimens of this kind of literature which Greek antiquity has to show. It is remarkable for original power, clear sketches of character, beauty of drawing, and moral intention; the style is pure, simple, and elegant.

Hēlĭŏs. In Greek mythology, the Sun-god, son of the Titan Hўpĕrīōn (whose name he bears himself in Homer) and the Titaness Theia; brother of Sĕlēnē (the Moon) and Eōs (Dawn). The poets apply the name Tītān to him in particular, as the offspring of Titans. He is represented as a strong and beautiful god, in the bloom of youth, with gleaming eyes and waving locks, a crown of rays upon his head. In the morning he rises from a lovely bay of the Ocean in the farthest East, where the Ethiopians dwell. To give light to gods and men he climbs the vault of heaven in a chariot drawn by four snow-white horses, breathing light and fire; their names are *Eōŏs*, *Æthĭops*, *Brontē*, and *Stĕrŏpē*. In the evening he sinks with his chariot into the Ocean, and while he sleeps is carried round along the northern border of the earth to the East again in a golden boat, shaped like a bowl, the work of Hēphæstus. He is called Phăĕthōn, from the brilliant light that he diffuses; he is the All-seer (*Păn-optēs*) because his rays penetrate everywhere. He is revealer of all that is done on earth; it is he who tells Hephæstus of the love of Arēs and Aphrŏdītē, and shows Dēmētēr who has carried off her daughter. He is accordingly invoked as a witness to oaths and solemn protestations.

On the island of Trīnăcrĭa (Sicily) he has seven flocks of sheep and seven herds of cattle, fifty in each. It is his pleasure, on his daily journey, to look down upon them. Their numbers must not be increased or diminished; if this is done, his wrath is terrible. (*See* ODYSSEUS.) In the 700 sheep and oxen the ancients recognised the 700 days and nights of the lunar year. The flocks are tended by Phăĕthūsa (the goddess of light) and Lampĕtĭē (the goddess of shining), his daughter by Nēæra. By the ocean Nymph Persē or Persēĭs he is father of Æētēs, Circē, and Pāsĭphāē, by Clўmĕnē the father of Phăĕthōn, and Augēās was also accounted his son. His children have the gleaming eyes of their father.

After the time of Euripides, or thereabouts, the all-seeing Sun-god was identified with Apollo, the god of prophecy. Helios was worshipped in many places, among which may be mentioned Corinth and Elis. The island of Rhodes was entirely consecrated to him. Here an annual festival (*Halia*) was held during the summer in his honour, with chariot-racing and contests of music and gymnastics; and four consecrated horses were thrown into the sea as a sacrifice to him. In 278 B.C. a colossal bronze statue, by Chārēs of Lindus, was erected to him at the entrance of the harbour of Rhodes. Herds of red and white cattle were, in many places, kept in his honour. White animals, and especially white horses, were sacred to him; among birds the cock, and among trees the white poplar.



HELIOS.
(Metope from temple of Athena, probably of 2nd century B.C., at the Greek city of Ilium, *Hissarlik*.)

The Latin poets identified Helios with the Sabine deity Sōl, who had an ancient place of worship on the Quirinal at Rome, and a public sacrifice on the 8th of August. But it was the introduction of the ritual of Mithrās which first brought the worship of the sun into prominence in Rome. (*See* MITHRAS.)

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2*' *;/.3',/(6*1'&'=*(5'406*(/03'</15' &6/04.!4>'./' 6/(*' .2&4' 2&;,' /,' .2*' A2/;*' &-*1&*6/4!&4' 7/70;&.!/4' 8CNN NNN9' 3' .2*5'A*(*'!4'&' 3.&.*' /,' -2(/4!-' 1!3-/4.*4.' .2*5'A*(*'!4'.!6*3' /,' 1&4>*(' &' 3/0(-*' /!' &40!*.5'./' .2*' 7&(.&43'&41'.2*' /<B*-.' /,' -/43.&4.' =!>!;&4-*' *4-*' .2*' !43.!.0.!/4' /,'.2*' $: !@(('03*1'./'<*'((/4*/03;5' (*7(*3*4.*1'&3'&' -2&3*' /,' .2*' *;/.3' 2*' ,&-.'!3'.2&.'<*,/(*'<*!4>'&16!..*1'./'6!;!F .&(53*(=!-*'7(/7*('.2*'5/04>' 7&(.&43'A*(*' &440&;;5'-/66&41*1'<5'.2*'*72/(3'./'3-/(' .2*' -/04.(5'3*!Q*' /4' &45' /<K*-.3' /,' 303F 7!-!/4'&41'!4'7&(.!-0;&('./'D**7'&4'*5*' /4' .2*' *;/.3'&41'70.'&45' *;/.'A2/6'.2*5' 2&1'(*&3/4'./'1!3.(03.'/0./,'.2*' A&5'A!.2B' /7.6/(*' &1/

41RD,.' 8H 2' ;*=*41 9' 2*' .*(6' &77;!*1'&.' .2*43'./'&'<&41'-/43!3.!4>'/,'.*4' 6*6<*(3'-2/3*4'<5';/.'&41'.2*!('3*-(*.&(5' 2*!(' 10.5'A&3'./'307*(!4.*41'.2*' 7(!3/43' (*-*!=*'&((*3.*1'7(!3/4*(3'&41'-&((5'/0.'.2*' 3*4.*4-*3'/,'.2*';&A' 2*' -&7!.&;'3*4.*4-*' A&3'*0*-0.*1'<5'.2*!(' 30</(1!4&.*3' 2*5' &;3' 2&1'7*4&;'K0(!31!-.!/4!4'.2*'-&3*'/,'1*F ;!4:0*4.31!3-/=*(*1'!4'.2*'&-.'/,'-/66!..!4>' /,,*4-*3'704!32&<;*'A!.2'1*&.2'/(!67(!3/4F 6*4.' ,'.2*5'7;*&1*1'>0!;.5'.2*' ;*=*4' !4,;!-.*1' .2*' 704!326*4.'&.' /4-*'!,' 4/.' .2*5'!43.!.0.*1'&'K01!-!&;'!4:0!(5'&41'7(*F 3!1*'&.'.2*'1*-!3!/4'/,'.2*'-&3*' 2*5'2&1' .2*' 3&6*' 7/A*(' !4' .2*' -&3*3' /,' *6<*QQ;*F 6*4./,'-/4,!3-&.*1'7(/7*(.5'/,'A2!-2'.2*5' 2&1';!3.3'!4'.2*!('7/33*33!/4

*723*3.;/4' ' (**D' 3/;1!*(' &' 4&.!=*' /,' ;*0&41(!&' A2/',;/0(!32*1' &</0.' .2*' 6!11;*' /,' .2*' @41' -*4.0(5' ' &41' A&3' .0./(' ./' .2*' *67*(/(' *(03'<*,/(*' 2!3'&--*3F 3!/4' *' "A(/.*'&' A/(D'/4'7(/3/15'!4',/(.5'" *!>2.'</!D3' A2!-2' 2*' ,!(3.'&<(!1>*1'!4.-' *;*=*4'</!D3'.2*4'!4./' .2(**' &41' ,!4&;' 5' !4./' /4*' 2*' ,!4&;' &<(!1>6*4.' -&;;*1' & 6&40&;'#9 ? T" ' 2&3'-/6*'1/A4'./'03' .' >!=*3' 4/' 6/(*' .2&4' &' <&(*' 3D*.-2' /!' 7(/3/15'"A!.2/0.'&45'&..*67.'&.' .2*/(*.!-&;' *07;&4&.!/4'/,' .2*' ,&-.3" <0.' !.'!3'4*=*(F .2*;*33'/,'!66*43*' =&;0*' .' !3' .2*' /4;5' -/67;*.*'.(*&.!3*' ,' (**D'7(/3/15'A2!-2' 2&3' 30(=!=*1',(/6'&4.!:0!.5'&41'!.' :0/.*3' =*(3*3',(/6'.2*';/3.'7/*.3' ..&-2*1'./'!.

' &' .(*&.!3*' /4' .2*' 1!,,*(*4.' ,/(63' /,' 9/".! ' &41' -/67/3!.!/4 ' !4' .A/' !4-/67;*.*' G=*6/43' 2*' 6&40&;' 2&3' &' 7(*,&-*' &,C0/ : " ' <5' /4>!403 ' &41' .A/' -/;F ;*-.!/43' /,' (*72&*3.03' # (' 4' (**D' 65.2/;/>5 ' .2*' >/1' /,' (#'&' &41' /,' .2*' &(.3' A2!-2' 4**1',!(*' !4' .2*' *0*-0.!/4 ' *' d &3' 3&!1' ./' <*' .2*' 3/4' /,' L*03' &41' *(&' %/(&&--/(1!4>' ./' *3!/1g' /,' .2*' ;&..*(' /4;5' 2*' </5' A&3' 0>;5 ' &41' ;&6*' !4' </.2' ,**.' &41' 2!3' 6/.2*(' A&3' &32&6*1' *,' 2!6' 2*' .2(*A' 2!6' ,(/6' ;56703' !4./' .2*' /-*&4 %A2*(*' 2*' A&3' .&D*4' 07' <5' 0(5416*' &41' 2*.!3' &41' -/4-*&;*1' !4' &' 30<.*((&4*&4' -&=*(4' *(*' 2*' (*6&!4*1',/('4!4*5*&(3'&41' %,&32!/4*1'&'406<*(' /,' *0:0!3!.*' A/(D3' /,' &(.' &6/4>' .2*6'&'>/;1*4' .2(/4*' A!.2'!4=!3!<;*' G-2&!43' A2!-2' 2*' 3*4.' ./' 2!3' 6/.2*(' <5' A&5' /,' (*=*4>*' 2*' 3&.' 1/A4' !4' !.' &41' A&3' -2&!4*1' ./' .2*' 3*&.' 3/' ,&3.' .2&.' 4/' /4*' %-/0;1' (*;*&3*' 2*(' 4' .2!3' !.' A&3' (*3/;=*1' ./' -&;' *72&*3.03' <&-D' ./' ;56703' (*3' A!32*1' ./' ,/(-*' 2!6' <&-D' <0.' A&3' 3-&(*1' %'/,' <5' 2!3' <(/.2*(' A!.2' ,!(*"<(&413' !/45303' &.' ;*4>.2' 30--**1*1' !4' 6&D!4> 2!6'1(04D' &41'<(!4>!4>' 2!6'<&-D' !4' .2!3' -/41!.!/4'./' ;56703' 0.' 2*' A&3' 1*3.!4*1' ./' 6**.' A!.2' 2!3' /;1' 6!32&7' &' 3*-/41' .!6*' 2*(*' A&3' &' :0&((*;' <*.A**4' L*03' &41' *(&' &41' *72&*3.03' .//D' 2!3' 6/.2*(' 37&(." A2*(*07/4' L*03' 3*!0*1' 2!6' <5' .2*' ;*>' &41' 20(;*1' 2!6' 1/A4' ,(/6' ;56703' *' ,*;;' 07/4' .2*' !3;&41' /,' *6413' A2*(*' .2*' !4.!&43' A2/' .2*4' !42&<!.*1' .2*' !3;&41' .//D' -&(*' /,' 2!6' &41' <(/0>2.' 2!6' ./' 2!63*;,' (/6' .2!3' .!6*' *64/3' A&3' 2!3' ,&=/0(!.*' &</1*' !3' ;&6*4.3' A&3' !4' .2*' ;&.*(' 3./(5' &..(!<0.*1' ./' .2!3' ,&;; 2*' ! " $%&3./(5' .2*' 3/K/0(4' /,' *72&*3.03' !4' .2*' -&=*(4' 041*(' .2*' 3*&' &41' 2!3' ,/41F 4*33' ,/(' *64/3' !3' !4' &;;' 7(/<&<!;!.5' <&3*1' 07/4' =/;-&4!-' 72*4/6*4&" .2*' 30<F 6&(!4*' &-.!=!.5' /,' =/;-&4!-' ,!(*3' & 1' .2*' 4&.0(&;' ,*&.0(*3' /,' .2*' !3;&41' /,' *64/3' *(*' .2*(*' A&3' &' =/;-&4/' -&;;*1' <35-2; 3' A2!-2' A&3' !4' &-.!=!.5' 1/A4' ./' .2*' .!6*' /,' ;*0&41*(' .2*' (*&.' 2*' ,(!*4132!7' *0!3.F !4>' <*.A**4' !/45303' &41' *72&*3.03' 6&5' <*' *07;&!4*1' <5' .2*' ,&-.' .2&.' .2*' <*3.' &41' ,!4*3.' A!4*3' &(*' >(/A4' !4' .2*' =/;-&4!-' (*>!/43' /,' .2*' /0.2 3' &' 6&3.*(' !4' .2*' 7(/10-.!/4' /,' <*&0.!,0;' &41' ,&3-!4&.!4>' A/(D3' /,' &(.' *72&*3.03' !3' !4' /6*(' .2*' 203<&41' /,' 2V(;3' &41' !4' *3!/1' /,' >;&;&' .2*' 5/04>*3.' /,' .2*' G (&-*3' 8V-*' " ' 2*' 3./(5' /,' 2!3' 6&((!&>*' !.2' 72(1;.*' A&3' 4/.' &77&F (*4.;5' A!,!*;5' D4/A4' !4' *&(;5' &4.!:0!.5' 2(/0>2' 2!3' &(.!3.!-' >*4!03' 2*' &77*&(3' &41' 6/3.' *37*-!&;;5' !4' .2*' .2*4!&4' ./(5' &3' .2*' !4.!6&.*' ,(!*41' /,' .2*4*' 4' /6*(' 2*' ;!=*3' &41' A/(D3' /4' ;56703' A2*(*' 2*' 6&D*3' 7&;&-*3' /,' <(&33' ,/(' 2!63*;,' &41' .2*' /.2*(' 1*!.!*3' 0.' 2*' 2&3' "&' ,/(>*' &;3/' /4' /04.' /35-2;/3' !4' *64/3' .2*' ;&.*(' 3./(5' >!=*3' 2!6' /4*' (61*(' .4&' !4' !-!;5' &41' /4' .2*' 3&-(*1' !3;&41' /(' !3;&41' /,' *723*3.0 g!4' .2*' !7&(!' 3;&413' A2*(*' 2*' !3' 2*&(1' &.' A/(D' A!.2' 2!3' -/67&4!/43' .2*' 5-; 7 3' ;;' .2*' 6&3.*(7!*-*3' ' 6*.&;' A2!-2' &77*&(' !4' .2*' 3./(!*3' /,' >/13' &41' 2*(/*3' .2*' 3*>!3' /,' L*03' .2*' &(6 ' /,' -2!;;*3' .2*' 3-*7.(*' /,' B6*64/4' .2*' 4*-D;&-*' /,' &(6 14!&' &41' /.2*(3' A*(*' &..(!<0.*1' ./' .2*' &(.' /,' *72&*3.03' /' 2*;7' 2!3' ;&6*4*33' 2*' 6&1*' &--/(1!4>' ./' /6*(' .A/' >/;1*4' 6&!1*43' A!.2' .2*' 7/A*(' /,' 6/.!/4' ./' ;*&4' 07/4' A2*4' 2*' A&;D*1 *' A&3' 60-2' A/(32!77*1' !4' *64/3' A2*(*' .2*(*' A&3' &4' &440&;' ,*3.!=&;' !4' 2!3' 2/4/0(' ;;' ,!(*3' A*(*' 70.' /0.' ,/(' 4!4*' 1&53' 10(!4>' A2!-2' (!.*3' /,' &./4*6*4.' &41' 70(!,!-&.!/4' A*(*' 7*(,/(6*1' 2*4' ,(*32' ,!(*' A&3' <(/0>2.' /4' &' 3&-(*1' 32!7' ,(/6

;?3 .2 ,!(*3 A*(* D!41;*1 &>&!4 &41 &
4*A ;!,* &3 .2* 3&5!4> A*4. <*>&4 .
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.2* 37/.;*33 &41 04-/((07.!<;* A!,* /, .2*
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4 ;&.*(.!6*3 .2* A/(32!7 /, *(& A&3
3.(/4>;5 ;/-&;!Q*1 !4 (>/3 &41 5-*4&*
. (>/3 32* .//D .2* 3&6* -/6 6&41!4>

7/3!.!/4 &3 .2*4* &. .2*43 &41 .2** 5*&(A&3 1&.*1 <5 .2* 4&6*3 / , 2*(7(!*3.*33*3 *.A**4 .2*3* -!.!*3 A&3 3!.0&.*1 .2*

>&(6*4. A&3 /,,*(*1 2*(*=*(5 ,!=* 5*&(3 <5 3!0.**4 ;&1!*3 -2/3*4 ,/(.2* 70(7/3* &41 .2* 6&!1*43 2*;1 & (&-* !4 2*(2/4/0(/4 .2* (&-*"-/0(3* &. ;567!& /*/.!& 2&1 !.3 ,*&3. /,. .2* 5 ! &6?3 !.3 ;&(>* &41 37;*41!1 .*67;* <0!;. <5 .2* ,&6/03 1;5-(.*3 2* -0-D//A&3 3&-(*1 ./ 2*(&3 .2* 6*33*4>*(/,37(!4> .2* 3*&3/4 !4 A2!-2 32* A&3 A*11*1 ./ L*03 3/ A*(* .2* 7*&-/-D 6!1 .2* -(/A &41 &6/4> ,(0!.3 .2* 7/6*>(&4&.* .2* 356</; /, A*11*1 ;/=* &41 ,(0!.,0;4*33 *-&./6<3 A*(* /,,*(*1 ./ 26(!4 3&-(!,!-* &3 ./ L*03

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(3*06 # <" & .*67;* 2*;1 !7 >(*&. 2/4/0(# / 9 . /(!4.2 32* A&3 .2* >/11*33 /, .2* 3.(/4>2/;1 . ;;3 &

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4 A/(D3 /, &(. 32* !3 (*7(*3*4.*1 &3 3*&.*1 /4 &. .2(/4* !4 &, 0;; (/<* -/=*(!4> .2* A2/;* ,!>0(* 4 2*(2*&1 !3 &3/(. /, 1!&1*6 /,.*4 A!.2 &=*!;' .2* *07(*33!/4 /, .2* ,&-* !3 3*=*(* &41 6&*3.!- .2* *5*3 ;&(>* &41 A!1* /7*4 &3 !4 .2* /6*(!- 1*3-(!7.!/4 2* !1*&; .57* /, *(& A&(,/041 !4 .2* 3.&.0* <B ?;,-;!.03 !4 .2* .*67;* &. (>/3 2!3 A&3 &-/;/33&;! !6&>* !4 >/;1 &41 !=/(5 (*7(*3*4.!4> .2* >/11*33 /4 2*(.2(/4* 2*(-(/A4 &1/(4*1 A!.2 ,!>0(*3 /, .2* (&-*3 &41 .2* *&3/43 &7/6*>(&4&.* !4 /4* 2&41 &41 !4 .2* /.2*, &3-*7.(* A!.2 .2* -0-D//4 .2* ./7 2*

<0(4!4>' &((/A3' &41' -0.3' /,,' !.3' <*&13" <0.' ,/(' *=*(5' <*&1' -0.' /,,' .A/' 4*A' /4*3' &(B ' .';*4>.2' ^;& 3'.<*' -<&(!/.**(' /,' *(&-;*3' &41' 3/4' /,' <!3' <(/.2*(' 7<!-;*3'3*B' .2*' A/0413' A!.2' <0(4!4>' <(&413' 7/4' .<*' !6 6/(.&;' <*&1'<*' ;&53' &' 2*&=5' 6&33' /,'(/-D' *' &4/!4.3' <!3' &((/A3' A!.2' .2*' 6/43.*(' 3' >&;;' 3/' .2&.' 2*4-*,/(.2' .2*' A 0413' .2*5' !4,;!-.' &(*' !4-0(&<;*' 0(53.2*03' (*,03*3' ./' &--*7.' .2!3' &3' &' >*40!4*'=!-./(5' &;;*>!4>' .2*' &33!3.&4-*' /,,*(*1' <5' ;/;&03' 8 9' 2*' </&(' /,' (56&4.203' A2!-2' !4,*3.*1' (-&1!&' *(&-;*3' <&1'<**4' -/6 6&41*1'./' <(!4>'!.' &;!=*' ./' 5-*4&*' 3/' 2*' -2&3*1'!.' !4./' &4' *07&43*' /,' 34/A' .!(*1' !.' /0.' &41' -&0>2.!.' !4' &' 4//B*' 2*' 6*(*' 3!>2.' /,' .2*' <*&3.' .2(*A' 0(53.2*03' !4./' 30-2' &' 7&4!-' .2&.' 2*' 3;04D' &A&5' !4./' &' .0<' 041*(>(/041' &41' <!1' .2*' 2*(/' !4' ,0.0(*' ./' 32/A'.2*' 7(//,' /,' 2!3' &-2!*=*6*4.3' /0.F 3!1*' .2*' -!.5' >&.*3' 8 4' .2*' -/4.*3.' A!.2' .2*' *4.&0(3' A2!-2' *(&-;*3' 2&1'./' 041*(>/' /4' 2!3' A&5'./' .2*' -2&3*' 3**') ' &41' 46/ 9' 8C9' 2*' 2!41'/,' /04.' (B4*!&' <*.A**4' (-&1!&' &61' -2&!&' 4/.2*(' &--/04.' ;/-&;!0*3' .2*' *=*4.' /4' /04.' 3*4J;03' &41' 37*&D3' /,' .2*' 64&;!&4' 2!41' .3' 2/(43' A*(*' /,' >/;1' &41' !.3' 2//,3' /,' <(&33' &41' !.' 2&1' <**4' 1*1!-&.*1' ./' (. 6!3' <5' .2*' ;*!&1' &5>*.*' *(&-;*3' A&3' ./' .&D*' .2*' 2!41' &;!=*' *' ,/;;/A*1' 2*(' ,/(' &' A2/;*' 5*&(' 07' ./' .2*' 3/0(-*' /,' .2*' 3.*(' !4' .2*' -/04.(5' /,' .2*' 57*(</(*&43' .';*4>.2' 32*' (*.0(4*1' ./' (-&1!&' A2*(*' 2*' A/041*1' 2*(' A!.2' &4' &(((/A' /4' .2*' <&4D3' /,' .2*' &1/4' &41' 3/-&0>2.' 2*(' 8V9' 2*' <!(13' .2&.' !4,*3.*1' .2*' ;&D*' /,' .5672&;03' !4' (-&1!&' 2*3*' *(*' 6&4" *&.!4>' 6/43.*(3' A!.2' -;&A3' A!4>3' &41' <*&D3' /,' <(&33' &41' ,*&.2*(3' .2&.' .2*5' 32/.' /0.' ;!D*' &((/A3' *(&-;*3' 3-&(*1' .2*' 6' A!.2' &' <(&Q*4' (&..;*' &41' 30--**1*1'!4' D!;;F !4>' 7&(.' &41' 1(!=!4>' &A&5' .2*' (*3.' A2!-2' 3*..;*1' 4' .2*' !3;&41' /,' (*.;<3' !4' .2*' ;&-D' *&' ./' <*' ,(!>2.*4*1' &A&5' &,.*(' &2&(1' ,!>2.' <5' .2*' (>/4&0.3' 8"9' *(&-;*3' A&3' -/6 6&41*1'./' <(!4>' 2/6*' ,/(' 16*. ' .2*' 1&0>2.*(' /,' 0(53.2*03' .2*' >!(1;*' /,' !77";5.*' :0**4' /,' .2*' 6&Q/43' ,.*(' 6&45' &1=*4.0(*3' 2*' ;&41*1' &.' 2`6!3-5(&' &41',/041'.2*' :0**4' (*&15'./' >!=*' 07' .2*' >!(1;*' /,' 2*(' /A4' &--/(1' 0.' *(&' 37(*&1' &' (06/0(' &6/4>' .2*' 6&Q/43' .2&.' .2*!(' :0**4' A&3' !4' 1&4>*(' &41' &' ,!*(-*' <&..;*' .//D' 7;&-*' !4' A2!-2' *(&-;*3' 3;*A' !77/;5.*' &41' 6&45' /,' 2*(' ,/;;/A*(3' 4' 2!3' (*.0(4' 2*' 3;*A' !4' .2*' 4*!>2/0(2//1' /,' (/5' &' 3*&" 6/43.*(' ./' A2/3*' ,0(5' D!4>' &/6*114' 2&1' /,,*(*1' 07' 2!3' 1&0>2.*(*3 "4`' &/6*1/4' (*,03*1'./'>!=*' *(&-;*3' .2*' (*A&(1' 2*' 2&1' 7(/6!3*1' A2*(*07/4' .2*' ;&..*(' A2/' A&3' 2&3.*4!4>' ./' (*.0(4' ./' 5-*4&*' .2(*&.*4*1' 2!6' A!.2' ,0.0(*' =*4>*&4-*' # ' &$ " *(' ;F(' 2*' ,&(6F 5&(1' /,' 0>*&3' D!4>' /,' ;!3' !4' A2!-2' ;&5' .2*' 104>' /,' NNN' -&..;*' A&3' -;*' -;*&(*1' !4' &'1&5' *(&-;*3' -/67;*.*1' .2*' .&3D' <5' .&6!4>' .2*' (!=*(' ;72J03' !4./' .2*' 5&(1' 0>*&3' 4/A' -/4.*41*1' .2&.' *(&-;*3' A&3' /4;5' &-.!4>' /4' .2*' -/66!33!/4' /,' 0(=3" .2*03' &41' /4' .2!3' 7(*.*0.' (*,03*1' 2!6' <!3' 7(/6!3*1'(*A&(1' *(&-;*3';*A' 2!6' &,.*(F A&(13' !.2' &;' 2!3' 3/43' &41' .2*(*07/4' ,/041*1'.2*' ;567!&4' >&6*3' # ' -1 &#(8 9' 6&1' <0;' 2&1' <**4' 3*4.' 07' ,(/6' .2*' 3*&' <5' 3*!1/4' ./' (&=&>*' .2*' !3;&41' /,' (*.*' !4' (*=*4B' ,/(' .2*' 1!3/<*1!*4-*' /,' !4/3' # ' . *$#(' *(&-;*3' A&3' ./' <(!4>' 2!6' ./' 5-*4)' &;!=*' *' -&0>2.' .2*' <0;;' -(/33*1' .2*' 3*&' 4' 2!3' <&-D' .2(*A' 2!6' /=*(' 2!3' 4*-D' &41' -&((!*1' 2!6' ./' 5-*4)' A2*(*' 2*' ;*.' 2!6' >/' 2*' &4!6&;' A&41*(*1' &;' .2(/0>2' .2*' *;/7/44*3*' &41' *41*1' <5' !4,*3.!4>' .2*' 4*!>2</0(2//1' /,' &(!!.214' A2*(*' 2*' A&3' &.' ;*4>.2' 3;&!4' <5' 2*3*03 8T9' !S6*1*3' &' 3/4' /,' (3' &41' D!4>' /,' .2*' !3 4>3' !4' 2(&-*' 2&1' 3/6*' 6&(*3' A2!-2' 2*' 03*1' ./' ,**1' /4' .2*' ,;*32' /,' .2*' 3.(&4>*(3' ;&41!4>' !4' .2*' -/04.(5' ,.*(' &' 3*=*(*' 3.(0>>;*' *(&-;*3' /=*(-&6*' .2*' D!4>' .2(*A' 2!3' </15' ./' .2*' 6&(*3' &41' .//D' .2*6' /,,' ./' 5-*4)' A2*(*' 0(53.2*03' ;*.' .2*6' >/' 8$N9' 2*' /0*4' /,' *!5 4 3' .2*' 3/4' /,' 2(5 /(' &41' .2*' /-*&4' 5672' &;;!((2<*' A&3' &' !&4.' A!.2' .2(*' </1!*3' &41' 6!>2.5' A!4>3' A2/' 1A*;.' /4' .2*' !3;&41' /,' (5.2B&' !4' .2*' ! &(.2*3.' *3.' /4' .2*' </(1*(3' /,' .2*' -*&4' 3.(*&6' I' 2&1' &' 2*(1' /,' (*1' -&..;*' A2!-2' A*(*' A&.-2*1'<5' .2*' 2*72*(1' 0(5.; 4' &41' 2!3' .A/"2*&1*1' 1/>' (.2(<3' &' 3/4' /,' ;B2/4' &41' -2!14&' 4' :0*3.' /,' .2*3*' -&..;*' *(&-;*3' A!.2' 6&45' &1=*4.0(*3' 7&33*3' .2(/0>2' 0(/7*' &41' !<5&' 4' .2*' </041&(5' /,' </.2' -/4.!4*4.3' 2*' *.3' 07"!4' 6*6/(5' /,' 2!3' &((!=&;' .2*' .A/' 7!;;&(3' A2!-2' <*&(' 2!3' 4&6*' &41' &.';*4>.2' (*&-2*3' .2*' -*&4' 3.(*&6' 77(*33*1'<5'.2*' (&53' /,' .2*' 4*!>2</0(!4>' 304' 2*' &!63' 2!3' </' &.' .2*' 04">/1' A2/' 6&(=*;3' &.' 2!3' -/0(&>*' &41' >!=*3' 2!6' 2!3' >/;1*4' </A;' ./' -(/33' .2*' -*&4' !4' ((!=*1' &.' (5.2*&' *(&-;*3' 3;&53' .2*' 32*72*(1' &41' 2!3' 1/>' &41' 1(!=*3' /,' .2*' -&..;*' "4) .!03' A2/' .*413' .2*' 2*(13' /,' &1*3' !4' .2*' 4*!>2<!0(2//1' <(!4>3' 4*A3' ./' *(5/4*3' /,' A2&.' 2&3' 2&77*4*1' *(5/4*3' 20((!*3' !4' 70(30!.' <0.' &,.*(' &' ,!*(-*' -/4.*3.' ,&;;3' <*,/(*' .2*' &((/A3' /,

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*(&-;*3 2*2*(/ (*.0(43 A!.2 .2*-&..;* .2(/0>2 <*(!& &0; !>0(!& .&;5 &41 !410-*3 .2* 7(!4-* /, .2* !4,*(4&; (*>!/43 ./ ;*. 2!6 .&D* -2* 1/>. ./ .2* !-!;5 6**.!4>* =*(5A2*(* A!.2 4*A &1F =*4.0(*3 &41 ;*&=!4> <*2!41 2!6 ./D*43 /, 2!3 7(*3*4-* .2* 6/0.2 /, .2* 2/4* 2* 2&1 &1(*&1,0; 3.(0>>;* A!.2 .2* (*&;*3 <!413 .2* !>5*3" 2!3 &(//A3 A*(* *02&03.*1 &41 <*&3.5 <5 .2* 6*(* 3.(*4>.2 /, &(6 &41 2* 2&1 304D !4 A*&(!4*33 07/4 2!3 D4** -&((!*3 2!6 ./ 0(53.2*03 &41 .&D*3 2!6 A2*4 L*03 (&!4*1 &32/A*(/, !4406*(&<;* 2&(6 &D* 1>0(!& &0; 3./4*3 ,(/6 2*&=*4 A!.2 A2!-2 2* 7(*F 2&.0=*4.0(*3 &41 ;*&=!4> <*2!41 2!6 ./D*43 /, 2!3 7(*3*4-* .2* 6/0.2 /, .2* 2/4* 2* 2&1 &1(*&1,0; 3.(0>>;* A!.2 .2* !>5*3" 2!3 &(//A3 A*(* *02&03.*1 &41 2* 2&1 304D !4 A*&(!4*33 07/4 2!3 D4** A2*4 L*03 (&!4*1 &32/A*(/, !4406*(&<;* 3./4*3 ,(/6 2*&=*4 A!.2 A2!-2 2* 7(*F =&!;*1 /=*(2!3 *4*6!*3 2* 7;&-* A&3 *=*(&,.*(&3./45 1*3*(.7;&!4 # (" () &41 *# *(&-;*3 2&1 6&1* .2* -!(-0!./, .2* 1(!&.!- &41 A&3 K03. 4*&(!4> (**-* A2*4 *(&*3*4. &>&1,;5 &41 3-&..*(*1 .2* 2*(1 !.2 60-2./!; 2* A&41*(*1 .2(/0>2 .2* 6/04.&!43 /, 2(&-* &3 ,&(&3 .2* *;;*37/4. 20. .2*4 /4;5 30--**1*1 !4 >*..!4> ./>*.2*(&7&(./, .2* -&..;* , .*(&1&4>*(/03 &1=*4.0(* A!.2 .2* !&4. ;-5 4*03 2* 30--**1*1 &.;*4>.2 !4 (*.0(4!4>./ 5-*4&* A2*(* 0(53.2*03 /,,*(*1 07 .2* -&..;* ./ *(& # ( ) 8$$9 2* >/;1*4 &77;*3 /, .2* *37*(;1>3 # / *(&-;*3 !3 !>4/(&4. 2*(* .2* >&(1*43 /, .2* *3F 7*(!1*3 &(* ./ <* ,/041 !4 A2!-2 .2* &77;*3 >(/A * &--/(1!4>;5 (*7&!(3 ./ .2* 56723 A2/ 1A*;; <5 .2* (;1 40 9 /4 A2/3* -/043*; 2* 30(7(!3*3 *(* 3 .2* /643!-!*4.>/1 /, .2* 3*& &41 -/67*;3 2!6 ./ >!=* &4 &43A*(4 .2!3 2* K/0(4*53 .2(/0>2 !<5& >57. &41 .2!/7!& A2*(* 2* 3;&53 4.&*03 03!(!3 &41 6 .2;/4 # 041*(.2*3* 4&6*39 * .2*4 -(/33*3 ./ 3!& 7&33*3 .2(/0>2 .2* &0-&303 A2*(* 2* 3*.3 (16*.2*03 ,(** &41 /4 .2(/0>2 .2* ;&41 /, .2* B7*(2<(&4 .!;; 2* ,!413 .;&3 /;;/A!4>.2* -/043*; /, (/6*.2*03 2* 3*413 .;&3 ./ <(!4> .2* &77;*3 &41 !4 2!3 &<3*4-* <*&(3.2* 2*&=*43 ,(2!6 /4 2!3 32/0;1*(3 .;&3 (*.0(43 A!.2 .2*6 <0.1*-;!4*3 ./ .&D* 2!3 <0(1*4 07/4 2!3 32/0;1*(3 &>&!4 7(/6!3!4> ./ -&((5 .2* &77;*3 ./ 0(53.2*03 2!63*;, *(&-;*3 -/43*4.3 &41 &3D3 .;&3 ./ .&D* .2* <0(1*4 /4;5 &6/6*4. A2!;* 2* &1K03.3 &-032!/4, /(2!3 2*&1 2* .2*4 20((!*3 /, A!.2 2!3 7(!Q* 4/.2*(&--/04. (*7(*3*4.3 *(&-;*3 &3 3;&5!4> .2* 3*(7*4. &1/4 A2/ >0&(13 .2* .(** &41 7;0-D!4> .2* &77;*3 2!63*;, 0(53.2*03 7(*3*4.3 2!6 A!.2 .2* &77;*3 2* 1*1!-&.*3 .2*6 ./ .2*4* A2/ (*3./(*3 .2*6 ./ .2*!(7;&-* 8$@9 * <(!4>3 .2* 1/> *(< (03 07 ,(/6 .2* ;/A*(A/(;1 2!3 !3 .2* 2*&=!*3. .&3D /, &;; /410-.*1 <5 *(6*3 &41 .2*4* 2* 1*F 3-*413 !4./ &1*3 &. .2* 7(/6/4./(5 /, &*4&!,!6 4 &1*3 2* 3*.3 2*3*03 ,(** &41 !410-*3 .2* 7(!4-* /, .2* !4,*(4&; (*>!/43 ./ ;*. 2!6 .&D* 2* 1/>. ./ .2* (*&;63 /, 1&5 !, /4;5 2* -&4 1/ 3 A!.2/0.03!4> 2!3 A*&7/23 *(&-;*3 <!413 .2* <*&3. <5 .2* 6*(* 3.(*4>.2 /, &(6 &41 -&((!*3 2!6 ./ 0(53.2*03 &41 .&D*3 2!6 2&-D &>&!4 !4./ &1*3 !3 .&3D !3 4/A 41*1 &41 2* (*.0(43 ./ 2*<*3 !3 ,!(3. A!,* >&(& 2* A*13 ./" 2!3 ,&!.2,0; ,(!*41 ;/;&03 &41 .2*4K/0(4*53" !4./ -2&;!&B ./ D!4> 0(5.03 A2/3* 1&0>2.*(";* 2* 6*&43 ./ A//* 2* D!4>3 3/4 72!.03 ,&=/0(3 2!3 30!. <0. 0(5.03 (*K*-.3 !. A!.2 -/4.*67. //4 &,.*(.2!3 0. ;5*03 3.*&;3 3/6* /, 0(5F .03 -&..;* &41 2* &--03*3 *(&-;*3 /, .2* (/<<*(5 *&4A2!;* *(&-;*3 2&3 (*3-0*1 ;-*3.!3 .2* A!,* /, 16*.03 ,(/6 1*&.2 72!.03 6**.3 *(&-;*3 <*>3 2!6 ./ 2*;7 2!6 !4 ;//D!4>, (.2* 3./;*4 -&..;* &41 &-F -/67&4!*3 2!6 ./ !(543 (* &,.*(2/3F 7!.&<;5 *4.*(.&!4!4>2!6 *(&-;*3 .2(/A3" 2!6 !4 & ,!. /, 6&14*33 ,(/6 .2* <&..;*F 6*4.3 /, 2!3 3.(/4>2/;1 2*&=5 3!-D4*33" !3 3*4. /4 2!6 ,(/(.2!3 60(1*(&41 *(&-;*3 7(&53 ./ .2* >/1 /, *;72!. ./ 2*&; 2!6 7/;;/ (*K*-.3 2!6 A2*(*07/4 *(&-;*3 &..*67.3 ./ -&AA & A*.2* .(!7/1 -/4F ,;!-. *430*3 A2*4 \J03 7&(.3 .2* -/6F <&.&4.3 A!.2 2!3 e2.4!4> 2* /(&-;* <!13 *(&-;*3 ./ 2!(* 2!63*;, /0., (.2(** 5*&(3 ,(.2(** .&;*4.3 &41 7&5 .2* 6/4*5 ./" 0(5.03 *(6*3 70.3 2!6 !4./ .2* 3*(=!-* /, 672&;* :0**4 /, 51!& 1&0>2.*(/, ;&(1&403 &41 A!1/A /, 6/;03 *(&-;*3" !3 1*>(&1*1 ./ ,*6&;* 1(01>*(5 !3 -;/.2*1 !4 3/,.(&!6*4.&41 3*.; ./ 37!4 A//; A2!;* .2* :0**4 &330 6*3 .2* ;!/4 3D!4 &41 .2,(-;0< 2* .!6* /, 3*(=!-* /=*(2* 041*(F .&D*3 &4 *07*1!.!/4 /, =*4>*&4-* &>&!43. &/6*1/4 /, (/5 *;&413 /4 .2* -/&3. /, .2* (/&1 A!.2 *!>2.**4 32!73 6&44*1 <5 .2* </;1*3. /, 2*(/*3 30-2 &3 ;&6/4 *;*03 &41 !-;*3 &/6*1/4 30--**13 !4 30(7(!3!4> .2* >0&(1 <5 .2* 32!73 &41 !4 3;&5!4> !-;*3 0. .2* -!.5 !3 3./(6*1 *;&6/4 <*!4> .2* ,!(3. ./ -;!6 .2* A&;; &41 &/6*1/4 A!.2 &;; 2!3 3/43 *0-*7. 11&(-*3 !3 3;&!4 <5 .2* &((/A3 /, *(&-;*3 # $ (4 2!3 (*.0(4 *(&3*413" &.*67*3. 07/4 2!6 4 .2* !3;&41 /, 3 2* 2&3 &2&(1 -/4,;!-. ./ 041*(>/ A!.2 0(5.;/4 .2* 3/4 /, 3*!1 4 &41 3 3/43 *(&-;*3 !3 &. ,!(3. A/041*1 &41 ,/(-*1 ./" ,;5 20. 7(*=&!;3 &. ;*4>.2 A!.2 .2* 2*;7 /, L*03

,.*(.2!3 .2*4* 30 6 6/43 .2* 2*(/ ./" 3 $+!! 1 6" +!! 3 6'&38 #6 2 #+" !#6'1(3 0*6+

3D!4 & * 4>(&=!4> &41 &(.!-;* @ *(D* *(-0;*3 /, .2* .2*4!&4 7/;;/4!03 4/A /4;5 &/./(3/ !3 * :0&;;5 -*;*<(&.*1 &) / 67&(* &;3/ .2* -/75 /, & 2*&1 /, *(&-;*3 /4 & (" /, A2!-2 .2*(* !3 &4 *4>(&=!4> 041*(.2* &(.!-;* "

*(&-;!1*3 &. 1 06&6*1 , " (**D 72!;/3/72*(</(4 &. (&1*& !4 /4.03 &</0. RN " * -&6* *&(;5 ./ .2*43 A2Z(* 2* <*-&6* & 1!3-!7;* /, ;&./ &41 (!3./;* &41 2&1 6&1* &(*70.&.!/4 <5 &</0. CN " (* A&3 .2* &0.2/(/, 3/6* 3!0.5 A/(D3 /4 & >(*&. =&(!*.5 /, 30<K*-.3W 72!;/3/725 6&.2*6&.!-3 603!- >(&6 6&(7/*.(5 7/;!F .!-&; &41 ;!.*(&(5 2!3./(K(&41 >*/>(&725 * A&3 & ;*&(4. &41 !4.*(*3.!4>*/(*&725 <0. 3/6*A2&. 1*,!-!*4. !4 -(!.!-&; 7/A*(* 2&=* & ,*A ,(&>6*4.3 /, 2!3 A/(D3 (*6&!4!4> <*3!1*3 &4 *0.(&-. ,(/6 &</!D /4 /43.!.0./!43 A2!-2 <*&(3 2!3 4&6* 0. &3 4/ 30-2 .(*&.!3* !3 *;3*A2*(* &..(!F <0.*1 ./ 2!6 .2!3 603.7(/<&<;5 <* (*F >&(1*1 &3 & 3*;*-.!/4 ,(/6 3/6* /, 2!3 /.2*(A(!.!4>3

*(&-;!.03 & 72*303 (**D 72!;/3/72*(A2/ ;!=*1 ,(/6 &</0. V V"CUV 10(!4> .2* .!6* /, .2* ,!(3. *(3!&4 1/6!4&.!/4 /=*(2!3 4&.!=* -!.5 3 /4* /, .2* ;&3. /, .2* ,&6!;5 /, 41(/-;03 .2* 1*3-*41&4. /, /1(03 A2/ 2&1 ,/041*1 .2* -/;/45 /, 72*303 *(&-;!.03 2&1 -*(F .&!4 2/4/(&(5 (*>&; 7(!=!;*>*3 A2!-2 2* (*F 4/04-*1 !4 ,&=/0(/, 2!3 <(/.2*(* ;!D*F A!3* 1*-;!4*1 &4 !4=!.&.!/4 /, D!4> &(!03 ./ =!3!. 2!3 -/0(. * A&3 &4 &12*(*4./, * K2* &(!3./-(&-5 &41 A2*4 &,.*(.2* 1*,*&. /, .2* *(3!&43 .2* 1*6/-(&.!-7&(.5 -&6* !4./ 7/A*(2* A!.21(*A !4 !;"206/0(./ &3*-;01*1 *3.&.* !4 .2* -/04.(5 &41 >&=* 2!63*;' 07 *4.!(*;5 ./ 2!3 3.01!*3 4 2!3 ;&.*(5*&(3 2* A(/.* &72!;/3/72!-&; .(*&.!3* A2!-2 2* 1*7/3!.*1 !4 .2* .*67;* /, (.*F 6!3 6&D!4> !. & -/41!./4 .2&. !. 32/0;1 4/. <* 70<;!32*1 .!;; &,.*(<!3 1*&.2 * A&3 <0(!*1 !4 .2* 6&(D*."7;&-* /, 72*303 &41 /(3*=*(&;-*4.0(!*3 ;&.*(.2* 72*3!&43 -/.!40*1 ./ *4>(&=* 2!3 !6&>* /4 .2*!(-/!43

!3 >(*&. A/(D "* > !4 .2(** </D3 A&3 A(!..*4 !4 .2* /4!&4 1!&;*-. &41 !3 .2* /;1*3. 6/406*4./, (**D 7(/3* /43!1*(&<;* ,(&>6*4.3 /, !. 2&=* -/6* 1/A4 ./ 03 2* ;&4>0&>* !3 </;1 2&(32 &41 ,!>0(&.!=** .2* 3.5;* !3 3/ -&(*;*33 .2&. .2* 354.&-.!-&; (*;&.!/43 /, .2* A/(13 &(* /,.*4 2&(1 ./ 7*(-*!=*" &41 .2* .2/0>2.3 &(* 7(/,/041 ;; .2!3 6&1* *(&-;!.03 3/ 1!,,!-0;. &A(!.*(.2&. 2* A*4. 4 &4.!:0!.5 <5 .2* 4&6* %.2* /<3-0(* I ^4/A;*1>* &--/(1!4> ./ *(&-;!.03 !3 <&3*1 07/4 7*(-*7.!/4 <5 .2* 3*43*3 *(F ,*-. D4/A;*1>* !3 /4;5 >!=*4 ./ .2* >/13 <0. & 7(/-*33 !4 D4/A;*1>* !3 7/33!<;* ./ 6*4 !31*6 -/43!3.3 !4 .2* (*-/>4!F .!/4/, .2* !4.*;;!>*4-* A2!-2 <5 6*&43 /, .2* 04!=*(3* >0!1*3 .2* 04!=*(3* =*(5F .2!4> !3 !4 &4 *.*(4&; ,;00 4/.2!4> .2*(*F ,/(* 4/.*=*4 .2* A/(;1 !4 !.3 6/6*4.&(5 ,/(6 4/(.2* >/13 .2*63*;=*3 &4 *3-&7* ,!4&; 1*3.(0-.!/4 2* 0;.!6&.* 7(!4-!7;* !4./ = 2!-2&;; *0!3.*4-* !3 (*3/;=&<;* !3 ,!(* 3 1(* -2&4>*3 -/4.!40&;;5 !4./ A&.*(&41 .2*4 !4./ *&(.2 3/ *&(.2 -2&4>*3 <&-D ./ A&.*(&41 A&.*(&>&!4 ./ ,!(* 2* A/(;1 .2*(*,/(* &(/3* ,(/6 !(* &41!4&;.*(4&.!4> 7*(!/13 !3 (*3/;=*1 &>&!4 !4./ ,!(* ./ ,/(6 !.3*;, D4*A /0. /, .2!3 *;*6*4. 2* 1!=!3!/4 /,04!.5 /(/, .2* 1!=! * /(!>!4&; ,!(* !4./ .2* 60;.!7;!-!.5 /, /77/3!4> 72*F 4/6*4& !3 H .2* A&5 1/A4A&(13 I &41 .2* -/43*:0*4-* /, &A(&41 &3.(!,* &(6/45 &41 7*&-* ;*&1 <&-D ./ 04!.5 <5 .2* A&5 07A&(13 I &.0(* !3 -/43.&4.;5 1!=!1!4> &41 04!.!4> 2*(3*; 3/ .2& .2* 60;.!7;!-!.5 /, /77/3!.*3 1/*3 4/. 1*3.(/5 .2* 04!.5 /, .2* A2/;* 2* *0!3.*4-* /, .2*3* /77/3!.*3 1*7*413 4;5 /4 .2* 1!,,*(*4-* /, .2* 6/.!/4 /4 H .2* A&5 07A&(13 I (/6 .2&. /4 H .2* A&5 1/A4A&(13 I # &!;* .2!4>3 .2*(*,/(&(* &. /4-* !1*4.!-&; &41 4/. !1*4.!-&;

(3& ,*3.!=&; 2*;1 &. (>/3 *=*(5 ,!=* 5*&(3 !4 2/4/0(/, *(& .2* >/11*33 /, .2* -/04.(5 2* 7(!*3.*33 /, *(& 1(/=* !4 & -&(1(&A4 <5 A2!.* /0*4 ./ .2* ;(**06 /(.*67;* /, .2* >/11*33 3!.0&.*1 <*.A**4 (>/3 &21 K,-*43* *&4.!6* .2* 7*/7;* 6&(-2*1 /0. !4 7(/F -*33!/4 .2* ,!>2.!4> 6*4 !4 .2*!(&(63 2*(* A&3 &>(*&. 3&-(!,!-* /, /0*4 &(! 2 # 1 ,/;;/A*1 <5 & >*4*(&; 3&-(!,!-!&; <&4:0*. &41 >&6*3 /, &;; 3/(.3 7*-!&; ,*&.0(* /, .2*3* A&3 & -/4.*3. !4 .2(/A!4> .2* K&=*;!4 A2!;* (044!4> &. ,0;; 37**1 &. & 32!*;1 3*. 07 &. .2* *41 /, .2* -/0(3* 2* =!-./(*=*1 & -(/A4 &41 & 32!*;1 A2!-2 2* -&((!*1 !4 .2* ,!4&; 7(/-*33!/4 *(&;1 ' * # &41 > 9(*(&;13 .&,;8 (E "! &. 4 &..(!<0.* /, *(6*3 8 9

(63 !;;&(3 36&;;*(&. .2* <&3* .2&4 &. .2* 3066!. A2!-2 .*(6!4&.*1 >*4*(&;;5 A!.2 & 2*&1 /, *(6*3 4 .2* *&(;!*3. !6*3 *(6*3 8!4 A2/3* A/(32!7 406F <*(C 7;&5*1 & >(*&. 7&(.9 A&3 A/(32!77*1 f*37*-!&;;5 !4 (-&1!& & &03&4!&3 !!! C `C " != `Cg 041*(.2* ,/(6 /,&3!67;*

:0&1(&4>0;&(' 7!;;&(' /,' 6&(<;*' /('A//1' A!.2' .2*' 3!>4!,!-&4.' 6&(D' /,' .2*' 6&;*' 3*0' 3' &(.' &1=&4-*1' .2*' 7!;;&(' A&3' 30(6/04.*1' ,!(3.' A!.2' &' <*&(1*1' 2*&1' &41' &,.*(A&(13' A!.2' &' 5/0.2,0;' 2*&1' /,' .2*' >/1' <*!4>' .2*' >/1' /,' .(&,,!-' 30-2' 7!;;&(3' A*(*' *(*-.*1' ./' 2!6' !4' .2*' 3.(**.3' &41' 3:0&(*3' /,' ./A43' !4' ..!-&' &,.*(' .2*' .!6*' /,' !7F 7&(-203' .2*' 3/4' /,' !3!3.(&.03' .2*5' A*(*' &;3/' *(*-.*1' &;/4>' .2*' -/04.(5' (/&13' &3' 6!;*"3./4*3' /6*.!6*3' .2*5' A*(*' !43-(!<*1' A!.2' &7/F 72.2*>63' &41' (!11;*3' !4' &1F 1!.!/4' ./' 1!(*-.!/43' &3' ./' .2*' A&5" f3/6*.!6*3' &;3/' A!.2' !43-(!7.!/43' !4' 2/4/0(' /,' .2/3*' A2/' 2&1' ,/0>2.' <(&=*;5' ,/(' %.2*!(' -/04.(5' *6' ; ddf' ! 3-2!4*3' ' ' ' $R g 4' .2*43' .2*(*' A&3' &4' *37*F -!&;;5' ;&(>*' 406<*(' /,' .2*6' !4' .2*' 6&(D*."7;&-*' ./' .2*' K ' /,' .2*' -(/7/;!3' .2*' ' *(*-.*1' 7&(.;5' <5' 7(!=&.*' !41!=!10&;3' &41' 7&(.;5' <5' -/(7/(&.!/43' ,/(6*1' &' ;/4>' -/;/44&1*' *0.*41!4>'<*F .A**4' .2*' &;;' /,' &!4.!4>3' # ' ' &41' .2*' ^!4>3' &;;' 83,/&' ' --/(F 1!4>;5' .2*' ;&..*(' A&3' 3/6*'" .,;!2*3' -&;;*1' .2*' &;;' /,' ' 2*4' .2*' 2*&13' /,' /.2*(' 1!=!4!F .!*3' 830-2' &3' .2*4*' *(&-;*3' ("39' A*(*' 7;&-*1' /4' 30-2' 7!;;&(3' .2*3*' A*(*' .2*4' -&;;*1' " ' " ' *(6`>"(&3' ' - (' 6 ' 4*&(' *41

*(6&72(11!.!;3' 4' (**D' 65.2/;/>5' ".2*' 3/4' /,' *(6*3' &41' 72(1!.*'</(4' /4' /04.' 1&' &41' *41/A*1' A!.2' .2*' <*&0.5' /,' </.2' 1*!.!*3' 2*4' &' >(/A4' 5/0.2' 2*' A&3' <&.2!4>' !4' .2*' &(!&4',/04.&!4' /,' &;6&-!3" &41' .2*' 5672' /,' .2*' ,/04.&!4' A2/3*' ;/=*' 2*' (*K*-.*1' 7(&5*1' .2*' >/13' .2&.' 32*' 6!>2.' <*' !41!33/;0<;5' 04!.*1' A!.2' 2!6' 2*' 7(&5*(' A&3' &43A*(*1' &41' &' <*!4>' 37(&4>' !4./' *0!3.*4-*' A2!-2' 04!.*1' .2*' :0&;!.!*3' /,' 6&;*' &41',*6&;*' 2*',&<;*' 7(/<&<;5' &(/3*',(/6' .2*' !4-;!4&.!/4' 7(*=&F ;*4.' !4' .2*' &3.*(4' (*;!>!/43' ./A&(13' -/4F ,03!4>' .2*' &..(!<0.*3' /,' </.2' 3*0*3' 4' 57(03' ,/(' !43.&4-*' &' 6&3-0;!4*' 72("1!. 3' -;&1' !4',*6&;*' &..!(*' A&3' A/(32!77*1' <5' .2*' 3!1*' /,' .2*' >/11*33' 72(/1!.*' !>0(*3' /,' 2*(6&72(/1!.*3' &(*' -/66/4' !4' &(.

*(6*3' /4' /,' L*03' &41' /,' .2*' &!&1' &!&' 1&0>2.*(' /,' .;&3' 66*1!&.*;5' &,.*(2!3' <!(.2' 07/4' .2*' (-&1!&4' 6/04.&!4' /,' 5;;*4*' 2*' >&=*' 7(//,' /,' 2!3' -2!*,' -2&(&-.*(F !3.!-3' !4=*4.!=*4*33' &41' =*(3&.!;!.5' 04!.*1' A!.2',&3-!4&.!/4' .(!-D*(5' &41' -044!4>' /(4' !4' .2*' 6/(4!4>' <5' 6!1"1&5' 2*' 2&1' !4=*4.*1' .2*' ;5(*" !4' .2*' *=*4!4>' 2*' 3./;*' ,!,.5' 2*&1' /,' -&..;*' ,(/6' 2!3' <(/.2*(' 7/;;/' A2!-2' 2*' 2!1' 3/' 3D!;,0;;5' !4' &-&=*' .2&.' .2*h' -/0;1' 4/.' <*' ,/041" &,.*(' .2*3*' *07;/!.3' 2*' ;&5' 1/A4' :0!*.;5' !4' 2!3' -(&1;*' 7/;;/' <5

8 ..!-'(*;!*,',/041'4*&(' &7;*3" 04!-2' ;57./.2*D9

6*&43' /,' 2!3' 7(/72*.!-' 7/A*(' 1!3-/=*(*1' .2*' .2!*,' &41' .//D' .2*' 6!3-(*&4.' ./' L*03' A2/' /(1*(*1' .2*' -&..;*' ./' <*' >!=*4' 07' /A*=*(' *(6*3' 3/' 1*;!>2.*1' 2!3' <(/.2*(' <5' 2!3' 7;&5!4>' /4' .2*' ;5(*' .2&.' !4' *0-2&4>*' ,/(' !.' 2*' &;;/A*1' 2!6' ./' D**7' .2*' -&..;*' (*3!>!;*1' ./' 2!6' .2*' >/;1*4' 3.&,;' /,',/(.04*' &41' /,'(!-2*3' A!.2' .2*' >!,;' /,' 7(/72*-5' !4' !.3' 206<;*(',/(63' &41',/(6' .2&.' .!6*' ,/(.2*' <*-&6*' 2!3' <*3.' ,(!*41' L*03' 6&1*' 2!3' 3/4' 2*(&;1' ./' .2*' >/13' &41' .2*' >0!1*' /,' .2*' 1*&1' !4' &1*3' 4' .2!3' 65.2' A*' 2&=*' &;;03!/43' ./' 3*=*(&;' &..(!<0.*3' /,' .2*' >/1

4' 6&45' 1!3.(!-.3' /,' (**-*' &41' *37*F -!&;;5' !4' (-&1!&' .2*' /;1' 3*&.' /,' 2!3' A/(F 32!7' *(6*3' A&3' (*>&(1*1' &3' &' >/1' A2/' <*3./A*1' .2*' <;*33!4>' /,' ,*(.!;!.5' /4' .2*' 7&3.0(*3' &41' 2*(13' &41' A2/' A&3' 2&77!*3.' 37*41!4>' 2!3' .!6*' &6/4>' 32*72*(13' &41' 1&;;5!4>' A!.2' 5672 3' <5' A2/6' 2*' 2&1' 406<*(;*33' -2!;1(*4' !4-;01!4>' &4' &41' &724!3' 4' 6&45' 7;&-*3' 2*' A&3' -/43!1*(*1' .2*' >/1' /,' -(/73" &41' &;3/' &3' .2*' >/1' /,' 6!4!4>' &41' /,' 1!>>!4>',/(' <0(!*1' .(*&30(*' !3' D!41;!4*33' ./' 6&4' !3' &;3/' 32/A4' !4' 2!3' <*!4>' .2*' >/1' /,' (/&13' .' -(/33"(/&13' !4

7&(.!-0;&(' .2*(*' A*(*' (&!3*1' !4' 2!3' 2/4/0(' &41' -&;;*1' <5' 2!3' 4&6*' 4/.' /4;5' 2*&73' /.' 3./4*3' ./' A2!-2' *=*(5' 7&33*(' <5' &11*1' &' 3./4*' <0.' &;3/' .23' :0&1(&4B&(' 7!;;&(3' D4/A4' &3' ' &' ' .' .2*43' .2*3*' ;&3.' A*(*' 3*.' 07' !4' .2*' 3.(**.3' &41' /7*4' 37&-*3' &41' &;3/' <*,/(*' .2*' 1//(3' =*(5' 04*07*-.*1' ,!41' /4' .2*' (/&1' A&3' -&;;*1' &' >!,.' /,' *(6*3' #(" ' />*.2*(' A!.2' .2*4`' 2*"*3-/(.3' &41' 7(/.*-.3' 2*(/*3' !4' 7*(!;/03' *4.*(7(!3*3' &41' >!=*3' .2*6' 7(01*4.' -/043*;3' *' .&D*3' 37*-!&;' 1*;!>2.' !4' 6*43' 1*&;!4>3' A!.2' /4*' &4/.2*(' !4' *0-2&4>*' &41' <&(.*(' !4' <05!4>' &41' 3*;;!4>' &;3/' !4' &;;' .2&.' !3' A/4' <5' -(&,.' /(' <5' .2*,.' 203' 2*' !3' .2*' 7&.(/4' /,' .(&1*37*/7;*' &41' .2!*=*3' &41' !3' 2!63*;' .2*' ,&.2*(' /,' 0.'" ;5-03' .2*' >(*&.*3.' /,' &;;' .2!*=*3' *' ./' !.' !3' A2/' *41/A*1' &41/(&' .2*' ,!(3.' A/6&4' A!.2' .2*' ,&-0;.5' /,' ;5!4>' &41' A!.2' ,;&..*(!4>' 1!3-/0(3*' &41' &' -(&,.5' 37!(!.' 4' &--/04.' /,' 2!3' 4!6<;*4*33' &71' &-.!=!.5' 2*' !3' .2*' 6*33*4>*(' /,' L*03' &41' D4/A3' 2/A' ./' -&((5' /0.' 2!3' ,&.2*(3' -/66&413' A!.2' &1(/!.4*33' &41' -044!4>' &3' !4' .2*' 3;&5!4>' /,' (>"3' 8.2*' >0&(1' /,' ;/9' ,(/6' A2!-2' 2*' 1*(!=*3' 2!3' *7!.2*.' /,' (>/3" ;&5*(' /(' 1 (" ' >&!4' &3' *(6*3' A&3' .2*' 3&-(!,!-!&;' 2*(&;1' /,' .2*' >/13' !.' A&3' &4' !67/(.&4.' 7&(.' /,' .2*' 10.5' /,' 2*(&;13' ./' &33!3.' &.' 3&-(!,!-*3' .' A&3' /4' .2!3' &--/04.' .2&.' .2*' 7(!*3.;5'(&-*/,' .2*' : '-;&!6*1' 2!6' &3' .2*' 2*&1' /,' .2*!(',&6!;5'# ' D' 3! ! 9' .(*4>.2' /,' =/!-*' &71' *0-*;;*4-*' %/,' 6*6/(5' A*(*' 3077/3*1' ./' <*' 1*(!=*1' ,(/6' 2!6' !4' 2!3' -&7&-!.5' /,' 2*(&;1' A!4>' ./'<!3'=!>/0(' 1*0.*(!.5' &41' 7*(3/4&;'-2&(6' 2*' A&3' 1**6*1' .2*' >/1' /,' >5 6 4&3.!-' 3D!;;' A2!-2' 6&D*3' 6*4' 3.(/4>' &41' 2&413/6*' &41' .2*' *37*-!&;' 7&.(/4' /,' </0!4>' (044!4>' &41' .2(/A!4>' .2*' *' !4' .26' -&7&-!.5' .2*' < ' &41' 1: " ' A*(*' 3&-(*1' ./' 2!6' &41' 7&(.!-0;&(' ,*&3' -&;;*1' ' A*(*' 1*1!-&.*1' ./' 2!6' *' A&3' .2*' 1!3F -/=*(*(' /,' 603!-' 8,/(' <*3!1*3' .2*' ;5(*' 2*' !4=*4.*1' .2*' 32*72*(13' 7!7*9' &41' 2*' A&3' &;3/' .2*' >/1' /,' A!3*' &41' -;*=*(' 1!3-/0(3*' ';&.*(' &>*' 6&1*' 2!6' *=*4' .2*' !4=*4./(' /,' ;*..*(3',!>0(*3'6&.2*6&.!-3'&41'&3.(/4/65' *!3'<*3!1*3'.2*'>/1'/,'3;**7'&41'/,'1'(*&63' A!.2' /4*' ./0-2' /,' 2!3' 3.&,,' 2*' -&4' -;/3*' /(' /7*4' .2*' *5*3' /,' 6/(.&;3*' 2*4-*' .2*' -03./6' <*,/(*' >/!4>' ./' 3;**7' /,' /,,*(!4>' 2!6' .2*' ;&3.' ;!<&.!/4' 3' 2*' !3' .2*' >0!1*' /,' .2*' ;!=!4>' /4' .2*!(' A&5' 3/' !3' 2*' &;3/' .2*' -/4F 10-./(' /,' .2*' 3/0;3' /,' .2*' 1*&1' !4' .2*' 4*.2*("A/(;1'#, : '&41' 2*' !3' &3' 60-2' ;/=*1' <5' .2*' >/13' /,' .2/3*' (*>!/43' &3' 2*' !3' <5' .2/3*' &</=*' /(' .2!3' (*&3/4 3&-(!,!-*' A*(*' /,,*(*1' ./' 2!6' !4' .2*' *=*4.' /,' 1*&.23' 'A*(*7;&-*1'/4'.2*'>(&=*3' &41' &.' /(&-;*3' &41' !4-&4.&.!/43' /,' .2*' 1*&1' 2*' A&3' 2/4/0(*1' &3' <*;/4>!4>' ./' .2*' ;/A*(' A/(;1" !4' >*4*(&;' 2*' &3' &--/04.*1' .2*' !4.*(6*1!&(5'<*.A*B'.2*' 077*(' &41';/A*(' A/(;13' !3'A/(32!7'*&(;537(*&1'.2(/0>2F /0.' .2*' A2/;*' /,' (**-*' 3' 2*' A&3' </(4' !4' .2*' ,/0(.2' 6/4.2' .2*' 406<*(',/0(' A&3' 3&-(*1' ./' 2!6' 4' (>/3' .2*',/0(.2' 6/4.2' A&3' 4&6*1'&,.*(' 2!6' &41'!4' .2*43' 2*' A&3' 2/4/0(*1' A!.2' 3&-(!,!-*3' /4' .2*' ,/0(.2' /,' *=*(5'6/4.2' !3'&;.&(3'&41'!6&>*3'86/3.;5' 3!67;*' " ' A*(*' !4' &;;' .2*' 3.(**.3' .2/(/0>2,&(*3' &01' /7*4' 37&-*3' &41' &B' &.' .2*' *4.(&4-*/,' .2*7/L-*3,(& 4' &(.' 2*' !3' (*7(*3*4.*1' !4' .2*' A!1*;5' =&(5!4>'-2&(&-.*(3'A2!-2' 2*' &330 6*1' &3' &' 32*72*(1' A!,2' &' 3!4>;*' &4!6&;' ,(/6' 2!3

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,;/-D' &3' &' 6!3-2!*=/03' ;!..;*' .2!*,' &3' .2*' >/1' /,' >&!4' A!.2' &' 70(3*' !4' 2!3' 2&41' # ',!>']9' A!.2' &' 3.(!>!;' &3' 7&.(/4' ' .2*' 1: " '&.' /.2*(' .!6*3' A!.2' &' ;5(*'<.!./,.*4*3.'/,'&;;' &3' .2*' 6*33*4>*(' /,' .2*' >/13

*' A&3 7/(.(&5*1'<5'.2*'>(*&.*3.'3-0;7./(3' 30-2' &3' 2!1!&3' <;5-;!.03' -V7&3' &41' (&0!.*;*3' A2/3*' *(6*3 A!.2' .2*' !4,&4.' !/45303' A&3' 1!3-/=*(*1' !4' $RUU' !4' .2*' .*67;*' /,' *(&' &.' ;5667!&' # ' # ' &41' $( ) ',!>' $N 9' 4' .2*' /;1*(' A/(D3' /,' &(.' 2*' &77*&(3' &3' &' <*&(1*1' &41' 3.(/4>' 6&4 !4' .2*' ;&.*(' /4*3 2*' !3' ./'<*' 3**4' !4' &' >(&-*,0;' &41' -2&(6!4>' &..!.01*' &3' &' 3;!6'5/0.2' A!.2' .(&4:0!;',*&.0(*3' !41!-&.!=*' /,' !4.*;;*-.' &41' >//1' A!;;' !3' 030&;' &..(!F <0.*3' &(*' A!4>3' /4' 2!3',**.' &' ,;&.' <(/&1" <(!66*1' 2&.' # ') ' A2!-2' !4';&.*(' .!6*3' A&3' /(4&6*4.*1' A!.2' A!4>3' &3' A&3' &;3/' 2!3' 3.&,,' 2!3';&3.' 8 (' 2: "*' &.' ',!>' @9' A&3' /(!F >!4&;;5' &4' *4-2&4.*(3' A&41' &' 3566</;'/,' .2*' 7/A*(' .2&.' 7(/F 10-*3' A*&;.2' &41' 7(/37*(!.KB' &41' &;3/' &4' *6<;*6' /,' !4,;0*4-*' /=*(' .2*' ;!=!4>' &41' .2*' 1*&1 0.' *=*4' !4' *&(;5' .!6*3' !.' A&3' (*>&(1*1' &3' &' 2*(&;1 3 3.&,,' &41' &4' *6<;*6' /,' 7*&-*,0;' !4.*(F -/0(3*" !.' -/43!3.*1' /,' .2(*' 32//.3' /4*' /,' A2!-2' ,/(6*1' .I' ( )(' .2*' 2&41;*' .2*' /.2*(' .A/'<*!4>' !4.*(.A!4*1'&.'.2*' ./7' !4' &D4/.' 2*' 7;&-*' /,' .2*' ;&..*(' A&3' &,.*(A&(13' .&D*4' <5' 3*(F 7*4.3" &41' .203' &(/3*' /0(' /(1!4&(5' .57*' /,' 2*(&;1 3 3.&,,' 5'.2*' /6&43' *(6*3' A&3' !1*4.!,!*1' A!.2' 0)) ' # *(6*3; 4&0' /,' ;<72/4' !4' /4!&" &' (**D' *;*>!&-' 7/*.' A2/';!=*1' !4' .2*' .!6*' /,' ;*0&41*(' .2*' (*&.' &</0.' N' (' &41' A&3' &' 3-2/;&(' &41',(!*41' /,' 2!;*.&3' *' -/67/3*1' *(/.!-' *;*>!*3' !4' .2*' 3.5;*' /,' .2/3*' <5' 2!3' -/67&.(!/' 4.;6 -203' 2*' .2(**' </<D3' -/4.&!4!4>' 2!3' -/67/3!.!/43' 2*' *4F .!.;*1' ; " " ' &,.*(' 2!3' 6!3.(*33' ',(&>F 6*4.' /,' 4!4*.5"*!>2.';!4*3' /,' .2*' .2!(1'</<D' 2&3'<**4'7(*3*(=*1' !4' A2!-2';/=*"3./(!*3' /,' 7/*.3' &41' A!3*' 6*4',(/6' (72*03' 1/A4' ./' 2!;*.&3' &(*'.(*&.*1' !4' &' (&.2*(' 04-/44*-.*1' 6&44*(' <0.' 4/.' A!.2/0.' 37!(!. *(6;/4*' 2*' /4;5' -2!;1' /,' *4*;&03' &41' *;*4' 2*' A&3' 6&((!*1' ./' */7.<;'" 603' .2*' 3/4' /,' -2!;;*3' !6 6*1!&.*;5' /4' 2*(',&.2*(3' (*.0(4',(/6' (/5' !4',0;,!;6*4.' /,' &' 7(/6!3*' 2*' 2&1' 6&1*' .2*(*' --/(1!4>' ./' &' 7/3." /6*(!-' .(&1!./4' 32*' 2&1' <**4' 7(*=!/03;5' 7(/6!3*1'./' (*3.*3' 2*' -;&!6*1' 2*(' /4' .2*' >(/041',' 2!3' 7(!/(' (!>2.' &41' /4' 2!3' -;&!6' 4>' (*,03*1' <5' */7./;*603' D!;;*1' 2!3' (!=&;' A!.2' 2!3' /A4' 2&413' /(' &.' &45' (&.*' -/67&33*1' 2!3' 1*&.2' &.' *;72!' (*3.*3' .//D' *(6!/4*' ./' 2!3' 2/6*' &41' 2&1' <5' 2*(' &' 3/4' !3&6 403 *(6!7743' ' (**D' 7/*.' /,' .2*' ;1 /6*15' &4' *;1*(' -/4.*67/(&(5' /,' (!3./F 72&4*3' &41' &' <!..*(' /77/4*4.' /,' *(!-;*3' A2/3*' 6!3.(*33' 37&3!&' 2*' 7(/3*-0.*1' /4' &-2&(>*' /,' &.2*!36' 4;5' &' ,*A',(&>6*4.3' /,' 2!3'1(&6&3' &3' &;3/' /,' 2!3';!<*;;/03'!&6<!-' 7/*63' &,.*(' (-2!;/-203' 6&44*(' 2&=*' <**4' 7(*3*(=*1" .2*5' &(*' (*6&(D&<;*' ,/(' .2*' -;*=*(4*33' /,' .2*!(' 3.5;* *(61> 4*3' ' (**D' (2*./(!-!&4' /,' &(303' !4' !;!-!&' A2/' ,;/0(!32*1' !4' .2*' 6!11;*' /,' .2*' @41' -*4.0(5' ' *' -&6*' ./' /6*' &3' &' (2*./(!-!&4' &3' *&(;5' &3' 2!3',!,.**4.2' 5*&(' &41' *0-!.*1' 04!=*(3&;' &16!F (&.!/4'*37*-!&;;5'/4'.2*' 7&(.'/,'.2*' *67*(/(' &(-03' 0(*;!03' 4' 2!3' .A*4.5",/0(.2' 5*&(' 2*';/3.'2!3' 6*6/(5' &41' 4*=*(' (*-/=*(*1' !.' .2/0>2' 2*' ;!=*1' ./' &' >(*&.' &>*' !3' A/(D'/4' 2*./(!-'A2!-2'3.!;;'*0!3.3'*4K/5*1' &' (*6&(D&<;*' 7/70;&(!.5'&41' A&3',/(' &';/4>' .!6*' .2*' 7(!4-!7&;' .*0."</<D'/,' (2*./(!-" !.' A&3' &;3/' *7!./6!3*1' &41' A&3' .2*' 30<K*-./,' 406*(/03' -/66*4.&(!*3' 2*' A/(D' !.3*;' -/43!3.3' /,' ,!=*' 3*-.!/43" 8 9' 4' 7/!4.3' &.' !330*' !4';*>&;' -&03*3" 8@9' 4' .2*' &(./,' 1!3F -/=*(!4>' &(>06*4.3" 8 9' 4' .2*' =&(!/03',/(63' /,' /(&./(!-&;' .5;*" 8C9' 4' 7/;!.!-&;' /(&.!/43' !4' 7&(.!-0;&(' &41' /4' .2*' &(.' /,' *;/:0*4.' &41' *,,*-.!=*' 37*&D!4>" 8V9' .2*' ;&3.'3*-.!/4'-/43!3.3' /,' (2*./(!-&;' *0*(-!3*3' #, 1: " ' A2!-2' A*(*' -&3.' !4./' &' ,(*32',/(6'<5' 72.2"4!03' # ' &41' .(&43F ;&.*1'!4./' &.!4'<5' (!3-!&4 *(/' ' *(/1*3' ..!-03' 8.2*' 4&6*' !4' ,0;;' !3' + ' $ ' ' ' -*;*<(&.*1' (**D' (2*./(!-!&4' </6' &</0.' N'&.' &(&.2/4' *'<*;/4>*1'./'&'=*(5' &4-!*4.',&6!;5'&41' (*-*!=*1'&'-&(*,0;'*10F -&.!/4' !4' (2*./(!-'&41' 72!;/3/725',(/6'.2*' ;*&1!4>'.*&-2*(3' /,' 2!3' 1&5' !3' .&;*4.3' &41' 2!3' *;/:0*4-*' A/4' 2!6' .2*' ,&=/0(' /,' .2*' *67*(/(' &1(!&4'A2/'!4' ' $@V' &7F 7/!4.*1' 2!6'7(*,*-.' /=*(' .2*',(**./A43' /,' .2*' (/=!4-*' /,' 3!&' 4' 2!3' (*.0(4' ./' .2*43'&</0.'$@T'2*'&..&!4*1'&'6/3.'*0&;.*1' 7/3!.!/4'4/.'/4;5'&3' .*&-2*(' /,' /(&./(5' <0.'&;3/'&3' .2*' /A4*(' /,' !66*43*' A*&;.2' A2!-2' 2*' 2&1' !42*(!.*1',(/6'2!3',&.2*(' 2!3' 2*' 6/3.';!<*(&;;5'1*=/.*1'./' .2*' 307F 7/(.'/,'2!3',*;;/A'-!.!Q*43'&41'./' .2*' *(*-F .!/4'/,'37;*41!1'70<;!-'<0!;1!4>3'!4'=&(!/03' 7&(.3'/,' (**-*' *' 2&1'K03.'<**4' (" ' A2*4'!4'$CN' 2*' A&3' 3066/4*1'./' /6*'<5' 4./4!403' !03'./' !43.(0-.' 2*' !67*(!&;' 7(!4-*3' &(-03' 0(*;!03'&41' !!- 0&' *(03' !4' (**D' /(&./(5' 6/4>3.'/.2*(' 6&(D3' /,' 1!3.!4-.!/4' >!=*4' 2!6',/(' .2!3' &3'.2*' -/430;32!7' !4' $C ' !3' /;1' &>*' A&3' 3&1F 1*4*1'<5'6!3041*(3.&41!4>3'A!.2'2!3',*;;/A

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A/(D <*>04 <5 2!3 ,&.2*(!4 .2* !4=*3.!>&F
.!/4/, >(&6 6&('&41 !4 (*10-!4>!.' ./ &353F
.*6&.!-,/(6 , 2!3 &-.!=!.5 &3 &4 &0.2/(
406*(/03 *=!1*4-*3 2&=* -/6* 1/A4 ./ 03
!4 .2* 32&7* /, *0.*43!=* ,(&>6*4.3 /, 2!3
A/(D3
(111.43 2 ,&6/03 (**D 2!3./(!&4
-&;;*1 .2* &.2*(/, !3./(5 </(4 &</0.
CTN CRN ' &. &;!-&(4&3303 !4 3!&
!4/(* A&3 /, 4/<;* ,&6!;5 <*!4> .2*
3/4 /, 50>3 &41 !"5/ 8/(2/!/9 !D*
2!3 04-;* .2* 7/*. &45&3!3 # =2% 2* ,;*1
!4 C?N ./ .2* !3;&41 /, &6/3 2&=!4> <**4
07;;*1,(/6 2!3 4&.!=* ./A4 <5.2* .5(&4.
5>1&6!3 (/6 .2!3 7/ 2* 3**63 ./
2&=* -/67;*.*1 2!3>(*&. .(&=*;3 A2!-2 2*
2&1 &;(*&15 <*>04 A2*4 &. &;!-&(4&3303
2*3* .(&=*;3 A*(* 6/3. *0.*43!=*% 2* .(&F
=*(3*1 3!& !4/(.2* !4.*(!/(/, 3!&
4*&(;5 &3 ,(&3 03& .2* (6-/" 3!&.!-
!3;&413 >57. &3 ,(&3 ;*72&4.!4* *
5(*4* .2* 32/(*3 /, .2* 00!4* &3 ,&(&3
) ' '
.2* &0-&303 &41 .2* 6/0.2 /, .2* &40<*
&3 A*;; &3 (**-* &41 .2* 4*!>2</0(!4>
-/04.(!*3 &=!4> (*.0(4*1 A!.2 2!3 04-2
./ &;!-&(4&3303 2* ./D 7&(. !4 .2* *070;
3!/4/, 5>1&6!3 8&</0. CVN9 <0. 7(/<&<;K
!4 -/43*:0*4-* /, 7/;!.!-&; !4.(!B*3 2* ,*;;
!4./ 1!3>(&- A!.2 2!3 ,*;;/A 4 36*4
&41 A&3 &>&!4 -/67*;;*1 ./ :0!.2!3 4&.!=*
-/04.(5
4 CCV 2* <*.//D 2!63*;, ./ .2*43
!4 /(1*(./ .&D* 7&(. !4 .2* 7(/K*-.*1
-/;/4!Q&.!/4 /, 20(!! !4 /0.2*(4 .&;5
(2* >&=* 70<;!- (*&1!4>3 ,(/6 .2*
A/(D3 A2!-2 2* 2&1 <*>04 ./ -/67/3* !4
&6/3 87(/<&<;5 .2* 7/(.!/43 (*;&.!4> .-
.2* *(3!&4 &(9 2*5 6*.' A!.2 30-;!
&77;&03* .2&. 2* A&3 (*A&(1*1 A!.2 &7(*F
3*4./, .*4.&;*4.3 8E! 9,(/,!,. .2* 70<;!-
.(*&30(5 * !3 &;3/ &!1 ./ 2&=* >!=*(
3!6!;&((*-!.&.!/43 *;3*A2*(* [&. .2* ,*3.&;
&33*6<;5 /, .2* (**D3 &. ;567!& &41
&;3/ &. /(!4.2 &41 2*<*3 * &(* ./;1
.2&. &. /4* /, .2*3* (*-!.&;3 20-51!1*3
A&3 K0*3*4. &3 &<5 &41 A&3 3/ &,,*-.*1
.2&. 2* 32*1 .*&(3 &41 (*3/;=*1 ./ 1*=/.*
2!63*;, ./ .2* A(!.!4> /, 2!3./(5 f * K
2/A*=*(&2;6&44 3 -2&7 !! 3*-. !! 9 *(/1/.03 A&3 !4 -;/3*
!4.*(-/0(3* A!.2*.2*;*&1!4>6 6!/, .2*1&5
4 .2*43 A2!-2 2* 3**63 ./ 2&=* /,.*(
=!3!.*1 &,.*(2&=!4>3*..;*1 &. 20(!! 8CC 9
2* D4*A *(!-;*3 &41 .2* 7/* /72/-;*3
A2/-/67/3*1 &37*-!&; 7/*6 !4 2!3 2/4/0(
!4 CC@ .' A&3 1/0<.;*33 .2*(* .2&. 2*
A&3 7(/67.*1 ./ 6/0;1 .2* 6&.*(!&;3 /;
2!3 2!3./(5 !4./ &' -/67;*.* &41 &(.!3.!-
A2/;* * -&((!*1 ,/(A&(1 .2!3 7;&4 &.
20(!! <0. !. !3 7(/<&<;* .2&. 2!3 1*&.2
A2!-2 /--0((*1 &</0. C@C 7(*=*4.*1 2!3
,!4!32!4> 2!3>(&41 1*3!>4
2!3 A/(D 8A2!-2 .2* ;*O&41(!4* -(!.!-3
1!=!1*1 !4./ 4!4* </!D3 4&6*1 &,.*(.2*
4!4* 03*39 6&(D3 .2* <*>!44!4> /, (*&;
2!3./(!-&; A(!.!4> &6/4> .2* (**D3 2*
!4103.(5 /, .2* *&(;!*(2!3./(!-&; A(!.*(3
8D4/A4 &3 1 1 ('2&1 -/4.*4.*1
!.3*;, A!.2 -/;;*-.!4> 6&.*(!&; /(&;
70(7/3* 30-2 &3 2!3./(!*3 /, ./A43 &41
,&6!;!*3 &((&4>*1 !4 &4 04-(!.!-&; &41 !4&(F
.!3.!-6&44*(.!3 .2* 6*(!./, */(1/.03
.2&. <5 2!3 3.015 /, .2* *0!3.!4>;!.*(&.0(*
&41 <5 2!3 .(&=*;3 2* -/;;*-.*1 2!3./(!-&;
>*/>(&72!-&; &41 *.24/>(&72!-&; 6&.*(!&;3
(*;&.!4> ./ .2* >(*&.*(7&(. /, .2* .2*(
D4/A4 A/(!1 .2&. 2* 3!,.*1 .2*6 A!.;
3/6* -(!.!-&; 1!3-*(46*4. .2&. 2* &((&4>*1
.2*6 041*(;*&1!4> ./7!-3 &41 3*. .2*6
,/(.2 !4 &4 /(!>!4&; &41 &..(&-.!=* ,/(6
23 .(0* 3-/7* /, .2* A/(D A2!-2 *6"

<(&-*3 &7*(!/1 /, @N5*&(3 1/A4 ./ .2* <&..;* /, 5-&;* 8CUT9 !3 .2* 3.(0>>;* <*F .A**4 .2* (**D3 &41 .2* <&(<&(!&43 A!.2 .2!3 ;*&1!4> .2(*&1 /, 2!3 4&((&.!=* &(* !4A/=*4 !4 &-/04.;*33 406<*(/, *7!3/1*3 1*3-(!7.!/43 /, .2* -/04.(!*3 &41 (&-*3 6/(* /(;*33 -;/3*;5 -/44*-.*1 A!.2 .2* 7(!4-!7&, *=*4.3 /, .2* 3./(5 3/ .2&.. .2* (*30;. !3 &-/67;*.* 7!-.0(* /, .2* D4/A4 A/(;1 &3!. .2*4 *0!3.*1 4 30</(1!4&.!/4 ./ .2!3 >*4*(&; /<K*-. .2* A2/;* 4&((&.!=* !3 !437!(*1 A!.2 .2* /4* >0!1!4> .2/0>2. .2&. &; 2!3./(5 !3 1*.*(6!4*1 <5 & 6/(&; >/=*(46*4. /, .2* A/(;1 /(1&!4*1 <5 & (/=!1*4-* A2!-2 (0;*3 .2* 1*3.!4!*3 /, 6&4 &41 .2&. *=*(5 *0&;.&.!/4 /, 6&4 &</=* .2* ;!6!.3 ,!0*1 <5 .2* *.*(4&; ;&A / ,2*&=*4 *0-!.*3 .2* K*&;/035 /, .2* >/13 &41 1(&A3 1/A4 &4 &=*4>!4> *6*3!3 /4 .2* 2*&1 /, .2* >0!;.5 /4* 2!63*;, /(2!3 1*3-*41&4.3

!3 =*(&-!.5 32/A3 !.3*;, !4 .2* 32&(7 1!3.!4-.!/4 2* 1(&A3 <*.A**4 7*(3/4&; /<F 3*(=&.!/4 /(&; !4,/(6&.!/4 &41 6*(* -/4F K*-.0(* 2!3 !67&(.!&;!.5 2!3 K03. (*-/>4!F ./4 /, 7(&!3*A/(.25 :0&;!.1*3 8*=*4 /4 .2* 3!1* /, .2* *4*659 !3 1!37;&5*1 !4 2!3 ,(&4D -*430(* /, 7/;!.!-&; /(6/(&; ,&!;!4>3 A2!-2 2* .2!4D3 2* 7*(-*!=*3 !4 2!3 ,(!*413 A2!;* 2!3 4/<!;!.5 /, -2&(&-.*(!3 *=!4-*1 <5 2!3 2*&(.5 1*;!>2. !4 &; .2&. !3 >/!1 &41 <*&0.!,0;

;.2/0>2 <5 (&-* *(/1/.03 <*;/4>*1 ./ .2* /(!&43 2* 4*=*(.2*;*33 6&1* 03* /, .2* /4!- 1!&;*-. A2!-2 2&1 <**4 *6F 7;/5*1 <5 2!3 7(*1*-*33/(3 .2* '/1G1 < ( ) .2/0>2 &. .!6*3 2* 6!4>;*3 !.A!.2 7!- /(!- &41 ..!- ,/(63 !3 3!67;!-!.5 /, 3.5;* (*-&;;3 .2&. /, .2* 1 1 (<&. 2* ,&(*0-*;3 .2*6 !4 -;*&(4*33 &41 >*4*(&; !4.*;;!>!<!;!.5 /, -/67/3!.!/4 !4 & 7;*&3!4> ,;/A /, ;&4>0&>* !4 &4 *7!- &41 ,.*4 *=*4 (*1041&4. ,0;4*33 /, *07(*33!/4 &41 &</=* &; !4 &>*4!03 ,/(4&((&.!=* A2!-2 2* 32/A3 !4 .2* =!=!1 1*3-(!7.!/4 /, .2* 6/3.1!=*(3* *=*4.3 [<!/>(&725 /, /6*(A(!..*4 !4 .2* /4!-1!&;*-. <*&(3 .2* 4&6* /, *(/1/.03 !.!3 (*&;;5 .2* A/(D /, & (2*./(!-!&4 &. .2* <*>!44!4> /, .2* 3.-*4.0(5 /, /0(*(&

*(/4 (**D 6&.2*6&.!-!&4 /, ;*OF &41(!& </0. .2* 6!11;* /, .2* (1-*4.0(5 (.2* A*;;"D4/A4 !4=*4./(/, "D (&41 "D " "; 2!3 '" R "' (" .2* 6/3. -/67(*2*4F 3!=* A/(D /, &4.!:0!.5 /4 .2* .2*/(5 /, .2&. 3-!*4-* /4;5 *0.(&-.3 &(* 7(*3*(=*1 !4 &7703 *; &;/7/33*33 2!3 1!3:0!3!.!/43 /4 7(*33*3 /4 .2* -/4.(!=&4-* /, &0./6&F ./43 &41 /4 .2* -/43.(0-.!/4 /, -&.&70;.3 &41 /.2*(*4>!4*3 ,/(7(/K*-.!;*3

(/14 2 32(!4* /, &2*(/ 8 ** !

(172;;> 2 (5.2(&*&4 !<5; # G H

(/3# 2(/ 2!3 !3 !4 /6*(&1*3-(!7.!=* .!.;* >!=*4 37*-!&;;5 ./7(!4-*3 &41 4/<;*3 <0. &;3/ &77;!*1 ./ 6*4 /, 6&(D 37(04>,(/6 .2* 7*/7;* *3!/1(*3*(=*3 .2* 4&6* ,/(6/(.&;3 /, 1!=!4* /(!>!4 A2/ &(* .2*(*,/(* &;3/ D4/A4 &3 1*6!>/13 &45 /, .2*3* 2* 7;&-*3 /4 .2* 3;&413 /, .2* ;*33*1 A2*(* !61*(.2* 3/=*(*!>4.5 /, (403 8^(/4/39 .2*5 ;*&1 & ;!,* /, 2&77!4*33 *3!/1 6&D*3 4/ &;;03!/4 ./ .2* !4,;0*4-* /, 2*(/*3 07/4 .2* ;!,* /, 6&4 /(./ .2* A/(32!7 10* ./ .2*6 !4 -/43*:0*4-* 0. !4 ;&.*(.!6*3 .2!3 <*;!*, 37(*&1 .2(/0>2/0. .2* A2/;* /, .(**-* 2* 2*(/*3 &(* !4 6/3. (*37*-.3 ;!D* 6*4 &41 30,,*(1*&.2 <0. 1*&.2 70.3 .2*4& !4 & 6/(* *0&;.*1 (&4D &41 .2*5 .2*4 2&=* 7/A*(./1/ &3 A*;;* &3 2&(6 2* 6/3. 1!3.!4F >0!32*1 A&(!/(3 /, 7(*2!3./(!-.!6*3 A*(* &--/04.*1 2*(/*3 <*!4> >*4*(&;;5 (*>&(1*1 &3 .2* /,,37(!4> /, >/13 <5 6/(.&; A/6*4 ./ .2*!(3/0;3 &4/.2*(1*3.!45 A&3 &--/(1F !4>;5 &33!>4*1 .2&4 .2&. &;;/..*1 ./ .2* 3/0;3 /, 6/(.&;* 0. *=*4 &6/4>3. .2* 2*(/*3 /, /;1 .!6* .2*(* A*(* 3/6* A2/ A!.2/0. <*!4> -2!;1(*4 /, .2* >/13 4*=*(F .2*;*33 3/ 1!3.!4>0!32*1 .2*63*;=*3 <5 .2*!(=!(.0* .2&. .2*5 &77*&(*1 ./7&(.!-!7&.* !4 .2* 1!=!4* 4&.0(* &41 .2*(*,/(* ./ 1*3*(=* &2!>2*(1!3.!4-.!/4 &,.*(1*&.2 =*4 !4 ;&.*(.!6*3 30-2 6*4 A*(* 4/ .04D4/A4 A2*4 7*(3/4&>*3 (*-*4.;5 1*-*&3*1 A*(* &-.0&;;5 *0&;.B ./ .2* (&4D3 /, 2*(/*3 &3 !4 .2* -&3* /, < 4!1&3 &. 7&(.& &41 &(" 6<1;03 &41 (!3. >*!./4 &. .2*43 2* ,/041*(3 /, -/;/4!*3 A*(* *37*-!&;;5 -/4F 3!1*(*1 A/(.25 /, A/(32!7 &3 2*(/*3 A2*4 .2* .(0* ,/041*(A&3 04D4/A4 .2*4 3/6* &77(/(!&.* 2*(/ A&3 3*;*-.*1 !43.*&1 /(6*(;5 .2*(* A*(* 6&45 30-2 ,!-.!.!/03 2*(/*3 ./ .2!3 -;&3 7(/7*(;5 <*;/4> &;; .2* .!.0;&(&4-*3./(3 /, .2* 4/<;* &41 7(!*3.;5 ,&6!;!*3 /, ..!-& &41 .2* ,/041*(3 /, 7&(.!-0;&(&(.3 &41 .(&1*3 &3 3*1&;03 &45 2*(/*3 /, 2!3./(!-&; .!6*3 A*(* /(!F >!4&;;5 >/13 A2/ !4 -/0(3* /, .!6* A*(* 1!=*3.*1 /, .2*!(7(!6!.!=* 1!>4!.5 2*(* A&3 4/ ./A4 /(1!3.(!-.!/, (**-* !4 A2!-2 &2 3./ /, 2*(/*3 A&3 4/. A/(32!77*1 <5 .2* 3!1* /, .2* 2!>2*(1!=!4!.!*3 6&45 &3 37*-!&;.0.*;&(5 37!(!.3 /, .2* -/04.(5 /.2*(3 &3 .2* 2*(/*3 /, .2* -/04.(5 &3 .2* !/3-0(! &. 7&(.& .2* B -;13* &. >;4& &41

"""""""B

d 2*3*03 !4 ..!-& 2*(* A*(* ,*3.!=&;3 !4 .2*!(2/4/0(*=*(5A2*(* 6&45 /, .2*6 36&;' &41 04!67/(.&4. &41 /4;5 -*;*<(&.*1 !4 & (*3.(!-.*1 -!(-;* /.2*(3 /<3*(=*1 <5 .2* 3.&.* &3 ,*3.!=&;3 /, .2* 7*/7;* !4 >*4*(&; &41 4/.' &' A2!.'!4,*(!/(!4 A*&;.2 %/,*: 0!76*4. ./ .2* 6/3.!67/(.&4.,*3.!=&;3 !4 2/4/0(/, .2*>/13 2!3 A&3 *37*-!&;;5 .2* -&3* A!.2 .2* 2*(/*3 /, .2* -/04.(5 &45 2*(/*3 2&1 32(!4*3 D4/A4 &3 ^(1. A2!-2 A*(* >*4*(&;;5 *(*-.*1 /=*(.2*!(>(&=*3 2* &;.&(3 /, 2*(/*3 A*(* ;/A*(.2&4 .2/3* /, >/13 &41 A*(* -*6 6/4;5 G1*3!>4&.*1 3&-(!,!-!&;' 2*&(.23 .2*5 A*(* >*4*(&;;5 /4 &' ;*=*;' A!.2 .2* >(/041 &41 %/4d.2* A*3.3!1* .2* (*>!/4 /, .2* 4*.2*(A/(;1 A*(* 7(/=!1*1 A!.2 &2/;;/A !4./ A2!-2 .2* ;!<&.!/43 A*(* 7/0(*1 !D* "/,,*(!4>3 ./ .2* 1*&1 .2*3* -/43!3.*1 /, 2/4*5 A!4* A&.*(6!;D ' /!;' &41 <;//1 A2!-2 2&1 <**4 32*1 <5 3&-(!,!-!&;' =!-.!63 .2* ,:*32 /, .2* &4!6&;3 3&-(!,!-*1 A&3 <0(4. 4 .2* 7*(!/1 /,1*-&1*4-*!.'<*-&6* %-03./6&(5 ./ .(*&.' .2* ;!=!4>' A!.2 2*(/!-2/4/0(3 0-2 2/4/0(3 A*(* 7&1! ./ .2* 7&(.&4 53&41*(<5 .2* ./A43 !4 3!& !4/(&41 A*(* &,.*(A&(13 &--/(1*1 ./ D!4>3 1 ./ 4.!> 403 &41 2!3 3/4 *6*a .(!03 &. .2*43

(3*' J '

3!/1 # ' 2 *&(;!*3.'*7!-'7/*.' %/, (**-* 84*0.' ./ /6*(9 A2/3* A(!.!4>3 2&=* &-.0&;;5 -/6* 1/A4 ./ 03 =*4 .2* &4-!*4.3 .2*63*;=*3 2&1 4/ -;*&(=!*A3 /, 2!3 1&.*'3/6* 6&D!4>'2!6'.2* -/4.*67/(&A /, /6*(&41 /.2*(3 *=*4 3.! /;1*(' * "-*(.&!4;5';!=*1&,.*(/6*('7(/<&<;5 &</0. .2* <*>!44!4>' /, .2* ;567!&13 !4 UU? ' !3 7/*63 -/4.&!4 !4-!1*4.&;;5 &, *A \&;;03!*43 ./ .2* -!(-063.&4-*3 /, 2!3 ;!,* --/(1!4>' ./ .2*6 2* A&3 </6 &. 3-(& !4 /*/.!& 4*&(; -/4 . 2*(* 2!3 ,&.2*(!43 2&1 3*..;*1 &3 &4 *6!>(&4. ,(/6 .2*) /;!-' 56*G ' !4 3!& . 2!3 ,&.2*(3 1*&.2 2* A&3 !4=/;=*1 !4 & 1!370.* A!.2 2!3 5/04>*(<(/.2*(*(3*3 &</0.2!3 7&.(!6/45 2!3 A&3 1*-!1*1 &>&!43.2!6 <5 .2* =*(1!-./,.2* K01>*3 A2/2&1 <**4 <(!<*1 <5 .2* 5/04>*(<(/.2*(!3>03. \&. .2* !4K03.!-* 2* 2&1 30,,*(*1 &41 & (* 4*A&; /, .2* 1!370.* A!.2 2!3 <(/.2*(&77*&(./ 2&=* 1*.*(6!4*1 2!6 ./ ,/(3&D* 2!3 4&.!=* ;&41 &41 ./ 3*..;* &. &47&-.03 --/(1!4>./ & .(&1!1/4 2* A&3 60(1*(*1 &. .2* /-(!&4 ./A4 /, 8 4 /4 <5 .2* 3/43 /, 2!3 2/3. /4 & ,&;3* 3037!-!/4 <0. <5 "-/66&41 /, .2* *;72!-' /(&-;* 2!3 </4*3 "A*(* <(/0>2. ./ (/2 6 403 A2*(* & B6/406*4. A!.2 &4 !43-(!7.!/4 A&3 *(*-.*1 ./ 2!6 !4.2* 6&(D*."7;&-* 4 &4-!*4. .!6*3 & 3*(!*3 /, *7!-' 7/*63 </(* 2!3 4&6* &41 A*(* &..(!<0.*1 ./ 2!6 &3 .2* (*7(*3*4.&F .!=* /, .2* /*/.!&4 &41 /-(!&4 3-2//; /, 7/*.(5 !4-/4.(&3./.2* /4!&4 &41 /6*(!-3-2//; 2(** 7/*63 /, 2!3 2&=* <**4 7(*F 3*(=*1 8$9 2* M " 5 : 2*!-2 -/43!3.3 /, 65.23 ,&<;*3 &41 7(/=*(<3 !4.*(A/=*4 A!.2 *02/(.&.!/43 ./ 2!3 <(/.2*(A2/ 2&=!4>;/3.<5 *0.(&=&>&4-* 2!3 32&(/, .2* 7&.(!6/45 A&3 4/A .2(*&.*4!4> 2!6 A!.2 & 4*A ;&A"30!. 2* 7/*.2*(* (*-/66*413 2!6 ./ &<3.&!4 ,(/6 2!3 04F (!>2.*/03 7(/-**1!4>3 &41 <5 2/4/0(&<;* ./!; ./ >&!4 ,(*32 *&;.2 ,/(2!63*;, * .2*(*,/(* ;&53 1/A4 ,/(2!3 >0!1.&!/* &;; 6&44*(/, 7(*-*7.3 /4 &>(!-0;.0(* 1/* 6*3.!-'*-/4/65 4&=!>&.!/4'*.- &41 37*-!* ,!*3 .2* 1&53 &77(/7(!&.* /(*=*! 041*(F .&D!4> ;.2/0>2 .2!3 7/*6 !3 1*,!-!*4.!4 .(0* &(.!3.!-' ,!4!32 !.' A&3 2!>2;5 =&;0*1 <5 .2* &4-!*4.3 /4 &--/04. /, !.3 6/(&; .*&-2!4>' 8@9 2* +(1 ":' 4 &--/04. /, .2* /(!>!4 /, .2* A/(;1 &41 /, .2* <!(.2 /, .2* >/13 A2!-2 !4 !.3 7(*3*4. 32&7*' !3 -/67/3. /, 1!,,*(*4. (*-*43!/43 />*.2*(A!.2 6&45 ;&.*(&11!.!/43 *0. ./ .2* /6*(!-7/*63 !.' !3 .2* 6/3.!67/(.&4. 3/0(-* /, /0(D4/A;*1>* /, .2* =!*A3 /, .2* (**D3 /, .2* *&(;!*3.!6*3 &3 ./ .2* A/(;1 &41 .2* >/13 8 9 2* ('7 ' 1*3-(!7.!/4 /, .2* 32!*;1 /, *(&-;*3 A(/0>2.<5 *72&*3.03 ./ &(6 .2* 2*(/!4 2!3 -/4,;!-.'A!.2 5-403 8B 0 9 3/4 /, (*3 . !3 & A*&D !6!.&!/4 /, .2* /6*(!-&--/04. /, . 32!*;1 /, -2!;;*3 &41 !3 -*(.&!4;5 4/. .2* A/(D /, *3!/1 3 &4 !4.(/10-.!/4 & 406<*(/, =*(3*3 &(* </(F (/A*1 ,(/6 & ;/3. 7/*6 <5 *3!/1 /, >*4*&;/>!-&;' !67/(. [&;!3. /, .2* A/6*4 A2/!7 .2* >/13 2&1 6&1* .2* 6/.2*(3 /, .2* 2*(/!-,&6!;!*3 /, (**-* 2* 7/*.(5 /, *3!/1 &;.2/0>2 -/67/3*1 !4 .2* 3&6* /(6 &3 .2&.' /6*(* 4*=*(&77(/&-2*3 !.' !4 >(&-* &41 <*&0.5 4 .2* -/4.(&(5 !.' !3 A&4.!4> !4 &(.!3.!-' /(6 &41 ,!4!32 &41 (&(*;5 &,,/(13 &45 (*&;* 4K/56*4. *=*(.2*;*3 !.' <*./D*43 &4 !67/(.&4. &1=&4-* !4 .2* 1*=*;/76*4. /, .2* (**D !4.*;;*-. ,(/6 .2* 4&!=* 3!67;!-!.5 /, !.3 &..!.01* !4 /6*(!-.!6*3 ./ .2* 37*-0;&F .!=* /<3*(=&.!/4 /, .2* A/(;1 &41 /, 206&4 ;!,* . -/4.&!43 .2* >*4,!3 /, ;5(!- &3 &;3/ /,*;*>!&- !6<!- &41 &41 /7*.(5 *3!14* &0>2.*(/, & 6*1 4 D!4>' /, (/5 &41 /, *0-!77* 5 2*(1*&.2 32* A&3 ./ &77*&3* .2* A(&.2 /, 3*!1/4 A2/ /4 &--/04. /, 2*(,&.2*(3 <(*&D!4>' 2!3 /(1 A&3 1*=&3.&.!4> .2* ;&41 A!.2

&' 6&(!4*' 6 /43.*(' *(&-;*3' 1*3.(/5*1' .2*' 6 /43.*(' &41' 3*.' .2*' 6&!1*4' ,(***' <0.' &/ 6 *1/4' "A&4.*1' ./' <(*&D' 2!3' 7(/ 6 !3*' ./' .2*'2*(/'&41' ./'1*7(!=*'2! 6'/,'2!3' 3.!70;&.*1' 7&5 6 *4.' /' *(&-;*3' ./ /D' (/5'3;*A' &/F 6 *1/4' &41' 2!3' 3/43' &41' >&=*' *3!/4*' ./' 2!3'-/ 6 7&4!/4' >; 6 /4'./' A2/ 6' 32*' </(*'& 3/4' *0-*(

*37`(!1"3' --/(1!4>' ./' *3!/1' .2*' 1&0>2.*(3' /,' !>2.' &--/(1!4>' ./' ;&.*(' &--/04.3' 1&0>2.*(3' /,' .;&3' &41' /,' *3"' 7*(!3' 2*!(' 4& 6 *3' A*(*' (.9 : (' ' 2*5' 1A*;;' /4' .2*' (!=*(' -*&403' 4*&(' .;&3' -;/3*' ./' .2*' /(>/43' /4' .2*' </(1*(3' /,' *.*(4&;' 1&(DF 4*33' !4' .2*' >&(1*4' /,' .2*' >/13' A2*(*' L*03' *37/03*1' *(&' />*.2*(' A!.2' .2*' 2041(*1F 2*&1*1' 1(&>/4' &1/4' .2*' 3/4' /,' 2/(-53' /(' 572/4' .2*5' >0&(1' .2*' >/;1*4' &77;*3' A2!-2' 6 '8/(' &(.29' -&03*1' ./' >(/A' &3' & 6&((!&>*' >!,.',/(' *(&' # '

3.!&' 2' >/11*33' /,' .2*' 2*&(.2' A2!-2' !3' .2*' * 6 <;* 6' /,' .2*' 3*..;*1' 2/ 6 *' 2*' !3' 1** 6 *1' .2*' ,/041*(' &41' 6&!4.&!4*(' /,' .2*' ,& 6 !;5' &41' .2*' 3.&.* ' /,' - 6 '" -/4-/(1' &41' /,' 70<;!-' (*=*(*4-*' ,/(' .2*' >/13' 2*' !3' .2*' 1&0>2.*(' /,' (/403' 8^(/413' &41' /,' 2*&" 3!3.*(' /,'L*03' 13*!1/4' &1*3' *(&' &41' *6*.>(" /4*' /,' .2*' .A*;=*' ;56 7!&4' 1*!.!*3',(/ 6' A2/ 6' 32*' !3' 1!3.!4>0!32*1' <5' .2*' ,&-.' .2&.' &3' .2*' &<!1!4>' >/11*33' /,' .2*' 2/03*2/;1' 32*' 4*=*(' ;*&=*3' ;56 703' 4' /6*(' .2*' 3&4-.!.5' /,' .2*' 2*&(.2' !3' !41**1' (*-/>4!3*1' <0.' &3' 5*.' A*' ,!41' 4/' 6*4.!/4' /,' .2*' >/11*33' .' !3' &' 6&..*(' /,' 1!3-033!/4' A2*.2*(' .2!3' A&3' <5' &--!1*4.' /(' <*-&03*' !4' .2&.' 7*(!/1' .2*' 7*(3/4!,!-&.!/4' /,' .2*' A/(32!7' /,' .2*' 2*&(.2' 2&1' 4/.' &.F .&!4*1' !.3' ,0;;' 7*(,*-.!/4' &=!4>' <**4' //*1'<5' 7/;;/' &41' /3*!1/4' 32*' .//D' &4' /&.2'/,' 7*(7*.0&;'=!(>!4!.5" 3/' L*03'>(&4.*1' 2*(' .2*' 2/4/0(' /,' <*!4>' A/(32!77*1' &3' &.0.*;&(5'>/11*33'&.' *=*(5' 2*&(.2' !4' 20 6&4' 2&<!.&.!/43' &3' A*;;' &3' !4' .2*' .* 6 7;*3' /,' .2*' >/13' &41' /,' <*!4>' -&;;*1' ./' 6!41' &6!1' ;!<&.!/43' &.' .2*' <*>!44!4>' &41' *41' /,' *=*(5' 3&-(!,!-*' &41' *=*(5' ,*3.&;' *4.*(.&!4 6*4.' *4-*' !.' A&3' .2&.' *=*(5' 3&-(!,!-*' <*>&4' &41' *41*1' A!.2' &;!<&.!/4' ./' *3.!&' 3/' .2&.' 32*' 2&1' &' 32&(*' !4' &;;' ,*3.!=!.!*3" &41' !4' *=*(5' 7(&5*(' &3' A*;;' &3' !4' &;;' .2*' 70<;!-' ,/(63' /,' 3/;* 64' /&.23' 2*(' 4&6*' A&3' (*-!.*1' <*,/(*' .2*' 4&6*' /,' &45' /.2*(' >/1' 03.' &3' !4' .2*' 2/ 6*' 2*(' -/43*-(&.*1' 2*&(.2' ,/(6*1' .2*' -*4.(&;' 7/!4.' /,' ,&6!;5' ;!,*' &.' A2!-2' ,&6!;5',*3.!=&;3' A*(*' -*;*<(&.*1' &41' A2*(*' </.2' 3.(&4>*(3' &41',0>!.!=*3',/041' &' 2/37!F .&<;*' &35;06' 3/' &;3/' !4' .2*' , : " "'/(' ./A42&;;' A2*(*' .2*' 3&-(*1' .!(*' A&3' *=*(

<0(4!4>' 2*(' 2*&(.2' A&3' .2*' -*4.(*' /,' .2*' ;!,*' /,' .2*' -!.5' !41**1'/,' .2*' A2/;*' 3.&.*' &41' /,' .2*' -/;/4!*3' A2!-2' 2&1' >/4*' ,/(.2' ,(/ 6' !.' *(*' &3' (*7(*3*4.&.!=*' /,' .2*' 3.&.*' .2*' 2!>2*3.' /,! -!&;3' 3&-(!,!-*1' ./' 2*('K03.' &3' !4' *=*(5' 7(!=&.*' 2/03*' .2*' ,&.2*(' /(' 6 /.2*(' /,' .2*' ,&6!;5' 7(/=!1*1' ,/(' 2*(' A/(32!7' *(*' &;3/' A*(*' 2*;1' #$+' 70<;!-' 1*;!<*(&.!/43' &41' .2*' 70<;!-'<&4:0*.>!=*4'./' 1*3*(=!4>'-!.!Q*43' &41'./',/(*!>4'&6<&33&1/(3' !.2*(' (*7&!(*1' &;' A2/'<*3/0>2.' .2*' 7(/.*-.!/4'/,' .2*' 3.&.*' *4-*' &;3/' 1!1' .2*' -/;/4!3.3'</041',/(' 1!3F .&4.'32/(*3'.&D*' .2*',!(*',/(' .2*' 70<;!-'2*&(.2' /,' .2*!.' 4*A'-/ 6 4;04!.5' 4' 3/ 6 *' (*37*-.3

' '

8 /6*'4/A'!4' .2*' + " ' 03*06 9

8 4' .2*' (!>!4&;' .2*';*,.' 2&41'!3' 4*&(*(' .2*' 32/0;1*(*' .2*',/(*,!4>*(' 6/1*(4 9

.2*' -*4.(*' /,' .2*' (*;!>!/03';!,*' /,' (**-*' A&3' .2*' ,!(*' /4' .2*' 2*&(.2' /,' *3.!&' !4' .2*' *;F 72!-'.*67;*'A2*(*'A&3' .2*' 3&-(*1' + ' 8/(' 4&=*;9' A2!-2' .2*' (**D3' -/43!1*(*1' ./' <*' .2*' -*4.(&;' 7/!4.' /,' .2*' !42&<!.*1'*&(.2' *3.!&' 3.&413' !4' -;/3*' -/44*0!/4' A!.2' L*03' &3' .2*' >0&(1!&4' /,' .2*' ;&A' /,' 2/37!.&;!.5' &41' /,' .2*' /&.2' 2*' A&3' &;3/' 60-2' &33/F -!&.*1' A!.2' *(6*3' &41' /,.*4' !4=/D*1' !4' -/4K04-.!/4'A!.2'2!6" *3.!&'&3'.2*'>/11*33' /,' >*4.;*' 1/6*3.!-!.5' &41' *(6*3' &3' .2*

(*3.;*33 >/1 /, .(&1* /4 .2* 70<;!- 3.(**.3 &41 (/&13 (*7(*3*4.!4> <*.A**4 .2*6 .2* .A/ 7(!4-!7&; =&(!*.!*3 /, 206&4 ;!,* -F -/(1!4> ./ & =!*A .2&. &,.*(A&(13 <*-&6* -0((*4. 041*(.2*!4,;0*4-* /, 72!;/3/72*(3 &41 653.!-3 32* &3 (*>&(1*1 &3 7*(3/4!F ,5!4> .2* *&(.2 &3 .2* ,!0*1 -*4.(* /, .2* A/(;1 &41 A&3 !1*4.!,!*1 A!.2 *6*.*(&41 5< ;* 2* -/((*37/41!4> 1*!.5 &6/4> .2* /6&43 A&3 *3.& & 2* 3.&.0*3 7;&-*1 !4 .2* , " (*7(*3*4.*1 2*(!4 &--/(1&4-* A!.2 2*(4&.0(* &3 & <*!4> A!.2 >(&=* &41 5*. >*4.;* *07(*33!/4 3!..!4> /(3.&41!4> !4 &4 &..!.01*/, (*3. A!.2 &3-*7.(* &3 2*(&..(!<0.* 2* 6/3. -*;*<(&.*1 /, 2*(*0!3.!4> 3.&.0*3 !3 D4/A4 &3 .2* T 2 " " = # -0.9 &,/(6 (/<*1 !4 3!67;* 1(&7*(5 A!.2 2&!(04&1/(4*1 &41 A*&(!4> & =*!; 2*((!>2.!!&41 (*3.3 /4 2*(2!7 &41 2*(;*, 2&41 A2!-2 !3 7/!4.!4> 07A&(13 /4-* 2*;1 & /4> 3.&,, &3 2*(3-*7.(*

35-2;,!3 (**D >(&6 6&(!&4 /, ;*OF &41(!& A2/ ;!=*1 7(/<&<;5 ./A&(13 .2* /41 /, .2* C.2 -*4.0(5) * -/67/3*1 A!.2 .2* &33!3.&4-* /, .2* A/(D3 /, *&(;!*(;*0!-/>(&72*(3 8*37*-!&;;5 .2&. /, !/> 4;&" 403 & ;*0!-/4 A2!-2 2&3 -/6* 1/A4 ./ 03 !4 & =*(5 -/4,03*1 ,/(6 <0. !3 4*=*(.2*F ;*33 &6/4> .2* 6/3. !67/(.&4. 3/0(-*3 /, /0(D4/A;*1>* /, .2* (**D ;&4>0&>* &41 .2(/A3 60-2 ;!>2. /4 .2* !4.*(7(*.&.!/4&41 -(!.!-!36 /, (**D 7/*.3 /(&./(3 2!3./(!&43 &41 7253!-!&43

.+(# 8 (*072*6!36 ,/(-/0(.*3&43 -&((5!4> /4 .2*!(7(/,*33!/4 -2!*,;5&. /(!4.2&41 .2*43 4.2*,/(6*(7;&-* .2*5A*(* -/44*-.*1 A!.2 .2* A/(32!7 /, 72(1!.* !4 .2*;&..*(.2*5A*(* !4.(/F 10-*1<5&4/(1!4&4-* /, /;/4 A2/ !4.*41*1 .2*(*<5./ /<=!&.*A/(3**=!;3 .2&.!67*(!;;*1 .2* 3&4-.!.5 /, .2* 6&((!&>*"</41 &41 .2* -2&3.!.5 /, 1/6*3.!-;!,* 2* !4.*(-/0(3* /, 046&((!*1 6*4 A!.2 (A&3 <5 4/ 6*&43 /43!1*(*1 !6 6/(&; !7 .2* -&3* /, 6&((!*1 6*4 !.A&3 1!3&77(/=*1 <5 -03./6 A2!-2 &,..*(.2* *;/7/4*3!&4 &(<*-&6* 6/(* &41 6/(* ;&0 !0 .2!3 &3 !4 .2*((*37*-.3 2* (A2/ A*(* D*7. !4 37*-!&; *3.&<;!326*4.3 &41 /4 A2/6 .2* 3.&.* ;*=!*1 & .&0 A*(* &;; ,*6&;* 3;&=*3 -4 .2*/.2*(2&41 .2*A/6*4 -&;;*1 (!4 & 4&((/A*(3*43* A2/ -&((!*1 /4 .2*!(.(&1* !41*7*41*4.;5 A*(* 1(&A4 -2!*,;5 G,(/6 .2* (&4D3 /, ,/(*!>4*(3 &41 ,(**1" A/6*4 . A&3 :0!.* 04*0&67;*1 ,/(&45 .2*4!&4 -!.!Q*4 3 1&0>2.*(./ <*-/6* & (2* !67/(.&4. 7/3!.!/4 .2*5 &330 6*1 !4 .2*3/-!&; ;!,* /, .2*43 &,.*(.2* *;/7/44*3!&4 &(!3 *&3!;5 >&.2*(*1 ,(/6 .2*;&.*(..!- /6*15 &3 .2*7;/./, .2*7!*-*3 >*4*(&;;5 .0(43 07/4 .2* &1=*4F .0(*3 /, & (3 -03./6 1*<&((*1 &;; (*37*-.&<;* A/6*4 &41 >!(;3 ,(/6 .2* 3/-!*.5 /, 6*4 .2* ,*6&;* *;*6*4.!4 .2* ;&..*(A&3 (*7(*3*4.*1 *0-;03!=*;5 <5 (6&45 , A2/6 <*-&6* ,&6/03 <5 7/33*33!4> .2* 6*4.&; -0;.0(* ,(/6 2!-2 .2*,*6&;* -!.!Q6!3 A*(* 1*;0!((*1 <5 .2*!(*10-&.!/4 &41 <5 .2*!(3*-;01*1 ;!,* 203 .2*5 A*(* &<;* ./ &..(&-. *=*4 6*4 /, *6!4*4-* 3 /, !;*.03 A&3 &<;* ./ 6&D* 2*(2/03* &. .2*43 .2* 6**.!4> 7/!4. /, .2* 6/3. (*6&(D&<;* 6*4 /, 2*(1&5 &6/4> .2*6 *=*4 & /-(&.*3 &41 & *(!-;*3 &41 .2* ;&..*(,;*3*(.*1 2!3 A!,* ./ 6&((5 2*(

/0(.*3&43 8-&;;*1 !4 ;!&.!4 < A*(* ./;*(&.*1 !4 /6* &3 !4 (**-* &41 4/ /<K*-.!/4 A&3 (&!3*1 ./ .2* !4.*(F -/0(3* /, 046&((!*1 6*4 A!.2 .2*3* 7*(F 3/43 2*5 A*(* 041*(.2* -2&(>* /, .2* 3*1!;*3 &41 ,(/6 .2* .!6* /, &;!>0;&.2*5 2&1 ./ 7&5 &.&0 ./ .2* !67*(!&; *0-2*:0*(.**7*1 &3 .2*5 A*(* !4 !4,&65 .2* ;&A *=*4 (*,03*1 ./ &--*7 .2*!(.*3.!6/45 &3 =&;!1 2*5 A*(* 1!3.!4>0!32&<;* ,(/6 (*37*-.&<;* A/6*4 <5 .2*!(-/3.06* .2*5 A/(* 4*!.2*(" <0. & 7/(.*(.04!- A!.2/0. ,(!4>* /=*(A2!-2 A&3 & />& /, 1&(D*(-/;/0(.2*5 A*(* 4/. 7*(F 6!..*1 ./ &1/7. .2* -2&(&-.*(!3.!-2*&1">*&(/, 6&.(/43 4 .2* <*3. .!6*3 .2* .(&1* A&3 /4;5 -&((!*1 /4 <5 3;&=*3 &41 ,(**1" A/6 4 <0. &,.*(A&(13 <5 ,(**"</(4 A/6*4 &;3/

.6(! 8 ((8H-/67&4!/43I9 2 1*3!>4&.!/4 /, &;, (** &-*1/4!&43 A2/ A*(* (*&15 ./ K/!4 !4 .2* 1*,*4-* /, .2*!(-/04.(5 *37*-!&;;5 .2* 4/<;*6*4 A2/ -/67/3*1 .2* 2*&=5 -&=&;(5 &3 -/4.(&3.*1 A!.2 .2* !4,&4.(5 8 (/, .2* (/5&; >0&(1 f3*- 2!(;A&;; 6 = 7 $UTg *.,,!(!3* 8 ((2* -/66/4 4&6* !4 (**-* ,/(&; &33/-!&.!/43 2&=!4> &45 7&(.!-0;&(/<K*-. <0. -2!*,;5 ,/(7/;!F .!-&; -;0<3 /,.*4 , &3*-(*. -2&(&-.*(,/(.2* &1=&4** 6*4. , -*(.&!4 !4.*(*3.3 !4 .2* 3.&.* 4 6&45 -&3*3 .2*!(6*6<*(3 /4;5 &!6*1 &. &33!3.!4> /4* &4/.2*(&3 &41!F 1&.*3 ,/(70<;!- /,,!-* /(!4 ;&A30!.3 <0. /--&3!/4&;;5 .2*5 &;3/ A/(D*1 ,/(.2* =!-F ./(5 /, .2*!(7&(.5 &41 ,/(& -2&4>* !4 .2* -/43.!.0!/4

!>(11.!;! 8 (2 8.*67;* 3*(=&4.39 2* 4&6* ,/(&;; A2/ dA*(* -;/3*;5 -/4F 4*-.*1 "A!.2 .2*3*(=!-* /, & 3&4-.0&(5 &41 *37*-!&;;5 30-2 &3 A*(* </041 ./ 7*(,/(6 -*(.&!4 3*(=!-*3 /<;!>&.!/43 &41 10.!*3 ./

.2*' 3&6*' &41' !4' 7&(.' ;!=*1' ' &' D!41' /,' </41 6*4' 07/4' !.3' ;&41' *' ,!41' .2*6' ,/(6!4>' &'-/43!1*(&<;*' 7/70;&.!/4' !4' 3!&' 1' &.' /6&4&' !4' &77&1/-!&' .2*(*' A*(*' 6/(*' .2&4" ' /,' .2*6' A2/' A!.2' .2*!('1*3-*41&4.3' <*;/4>*1' &3' 3;&=*3' ./' .2*' >/1F 1*33' -&;;*1' 4' <5' .2*' (**D3' 2*5' 3*(=*1' &3' ;&</0(*(3' /4' .2*' *3.&.*3' /,' .2*' .*67;*' &41' 7*(,/(6*1' .2*' 206<;*3.' /,,!-*3' &3' 2*A*(3' /,' A//1' &41' 1(&A*(3' /,' A&.*(' 2*' *;72!-'3&4-.0&(5' /,' 7/;;/' 2&1'3!6!;&(' 6!4!3.(&4.3' ,(/6' &' =*(5' *&(;5' 1&.*' &3' 2&1' &;3/'.2*'.*67;*' /,' 72(/1!.*' /4' /04.' (50' !4' !-!;5' 4' .2*' 3&6*' 6&44*(' 72(/1!.*' /,' /(!4.2' !4' .2*' ,;/0(!32!4>' .!6*3' /,' .2&.' .2&.' -!.5' 2&1' /=*(' ' >!(;3' 1*1!-&.*1' ./' 2*(' 3*(=!-*" .2*5' &11*1' <(!;;!&4-5' &41' ;03.(*' ./' 2*(' A/(32!7' &41';!=!4>' &3' (' .2*5' 7&!1' &'7/(.!/4' /,' .2*!(' *&(4!4>3' ./' .2*' >/11*33' &3' .(!<0.*

; (6*4;&' 2*' (**D' .*(6',/(' .2*' 2/;5' .!6*' /,' .2*' 6/4.2' ' .2&.' 7/(.!/4' /,' *&-2' 6/4.2' A2!-2' A&3' D*7.' &3' &' ,*3.!=&;' ' .' 1!,,*(*1'!4' .2*' 3*=*(&;' 6/4.23' &--/(1!4>' ./' .2*' 6;6<*(' &41' 10(&.!/4' /,' .2*' ,*3.!=&;3' 0(!4>' .2!3' .!6*' .2*(*' A&3' &' 3037*43!/4' /,' &;;' <03!4*33' &41' *=*4' /,' ;&A30!.3' &41' *0*-0.!/43' &41' A&((&4.3' A*(*' !4' &<*5&4-*" !4' 32/(.' *=*(5.2!4>' .2&.' A&3' ;!D*;5' ./' !4.*((07.' .2*' 04!=*(3&;' 7*&-*' &41' .2*' -*;*<(&.!/4' /,' .2*' ,*3.!=&;' A&3' 3*.' /4' /4*' 3!1*' /(' .2*' >(*&.*(' ,*&3.3' &' H' .(0-*' /,' /1'I' A&3' 7(/-;&!6*1' # ' % &

(164*6/0' 2*' (*-/(1*(' /,' /,,!-*(' !4' -2&(>*' /,' 3&-(*1' <03!4*33' &.' .2*' 6**.F !4>3' /,' .2*' 672!-.5/4!-' /04-!;' # ' " '& !

! (/45623' 8$9' ' (**D' 2!3./(!&4'</(4' &.' &(1!&'!4' 2(&-*" 2*' ,/0>2.' 041*(' ;*OF &41*(' .2*' (*&.' &41' &,.*(' 2!3' 1*&.2' &..&-2*1'2!63*;,'./'2!3'-/67&.(!/.' 06*4*3' 2*5' A*(*' </.2' -&7.0(*1' !4' ' (' $?' <0.' !*(/4 (603' ,/041',&=/0(' A!.2' 4.>403' &41' A&3' &77/!4.*1' >/=*(4/(' /,' 5(!&' *6*.(!03' .2*' 3/4' /,' 4.!>/403' *4.(03.*1' 2!6' A!.2' .2*' >/=*(4/(32!7' /,' -*/.!&' *' 30(=!=*1' 5((203' 8/"' @U@9' &41' 1!*1' &.' .2*' &>*' /,' $NC' &.' .2*' -/0(.' /,' 4.!>/403' /4 .&3' .' &4' &1=&4-*1' &>*' 2*' -/67/3*1' &' 2!3./(5' /,' .2*' !&1<-2!' &41' .2*!(' 30-F -*33/(3' 1/A4' ./' &41' <*5/41' .2*' 1*&.2' /,' 5((203" A2!-2' &;.2/0>2' /,' 36&;' =&;0*' !4' 7/!4.' /,' 3.5;*' A&3' &4' /(!>!4&;' A/(D' /,' >(*&.' =&;0*' &41' .2*' ,/041&.!/4' /,' &;;' .2*' &--/04.3' /,' .2*' 30--*33/(3' /,' ;*O&41*(' .2&.' 2&=*' -/6*' 1/A4' ./' 03' 2*' A/(D' *0!3.3' !4',(&>6*4.3' /4;5

8@9' *3.' D4/A4' &3' " ' . ' 4*' /,' .2*' 6/3.',&6/03' /,' .2*' &.!4' &.2*(3 /,' .2*' 20(-2' *' A&3' </(4' &.' .(!1/4' /4' .2*' </(1*(3' /,' &;6&.!&' &41' &44/4!&' &</0.' ' CN' *' A&3' .2*' 3/4' /,' (*37*-.&<;*' &41' A*&;.25' 2(!3.!&4' 7&(*4.3" &41' (*-*!=*1'!4' /6*' &41' (*=*3' &3*-0;&(' *10-&.!/4' !4' (2*./(!-' &41' 72!;/3/725' 4' UC' 10(!4>' &' K/0(4*5'!4' .2*' &3.' 2*' A&3' &;&(6*1'<5' &'1(*&6' A2!-2';*1' ./' 2!' A!.2F 1(&A!4>' ,(/6' .2*' A/(;1' &41' ;!=!4>' &3' &' 2*(6!.' !4' .2*' 5(!&4' 1*3*(.' ,.*(' ,!=*' 5*&(3' 2*' ;*,.' 2!3' (*.!(*6*4.' &41' ;!=*1' !4' 4.!/-2' /43.&4.!4/7;*' &41' /6*' .!;;' 2*' 3*..;*1' &.' *.2;*2*6' !4' R?' *' .2*(*' ,/041*1' &' 6/4&3.*(5' &41' &3-2//;' /,' ;*&(4F !4>' &41' 2*' *41*1' &4' &-.!=*' ;!,*' !4' C@N' 6/4>' 2!3' 406*(/03' A/(D3' 6*4.!/4' 603.' <*' 6&1*' /,' 2!3'.(&43;&.!/4' &41' -/4.!40&.!/4' 8!4' RN' g' /,' .2*' (**D' 2(/4/;/>!-&;' &<;*3' /,' 03*<!03' 8> 0 9" .2!3' !3' /,' >(*&.' =&;0*' ,/(' .2*' 2!3./(5' /,' /6&4';!.*(&.0(*' /A!4>' ./' !.3' :0/.&.!/43' ,(/6' .2*' A/(D' /,' 0*./.4!03' C' = " ' A2!-2' A&3' .2*4' *0.&4.' !4' !.3' -/67;*.*' ,/(6' 4' !6!.&F .!/4' /,' .<*' ;&..*(' &41' 041*(' &' 3!6!;&(' .!.;*' 2*' A(/.*' &' A/(D' /4' 2(!3.!&4' !.*(&.0(*' *' &;3/'A(/.*' .2*' A*;;"D4/A4' &.!4'=*(3!/4' /,' .2*' !<;*' D4/A4' &Z' .2*' 0;>&.*' A2!-2' !3' 3.(!-.;5' 37*&D!4>' &' (*=!3!/4' &41' !4' 7&(.' &' 4*A' =*(3!/4' /,' &4' /;1*(' .(&43;&.!/4

!*(/72&4.' 8 (' / (" ' H' 1!3-;/3*(' /,' d3&-(*1' .2!4>3' I9' 2*' -2!*,' 7(!*3.' !4' .2*' ;*03!4!&4' 653.*(!*3' # ') ' *' A&3' &;A&53' &' 6*6<*(' /,' .2*' ,&6!;5' /,' .2*' 06/;7!13*' .' A&3' 2!3' 10.5' ./' *02!<!.' ./' .2*' !4!.!&.*1' .2*' 3&-(*1' 356</;3' /,' .2*' 653.*(!*3' &41' &.' .2*' 3&6*' .!6*' 7(/<&<;5' ./' -2&4.' .2*' ;!.0(>!-' 25643' /(!>!4&;;5' 1*F (!=*1',(/6' 2!3' &4-*3./(' .2*' 2(&-!&4' <&(1' 06/;703

!*(/7-*!' 8 (' (' H' 6&4&>*(3' /,' .2*' 3&-(!,!-*3!9' 2*' (**D' .*(6',/(' *(F .&!4',,!-!&;3' A2/'<*3!1*3' 2&=!4>' .2*' -&(*/,' .2*' 3&-(!,!-*3' 2&1' &;3/' .2*' 307*(!4.*41*4-*' /,' .2*' *-/4/6!-'1*.&!;3/,' .2*' 3&4-.0&(5' &41' .2*' -2&(>*' /,' .2*' 6/4*5' &41' .(*&30(*3/,' .2*' .*67;*' 4' .2*43' <*3!1*3' 30-2' /,,!-!&;3' &..&-2*1' ./' .<*' 3*=*(&;' .*67;*3' .2*(*' A&3' &' </&(1' /,' .*4' 6*4' 5*&(;5' &77/!4.*1' <5' ;/' A2/' 2&1' ./' &..*41' ./' .2*' -*;*<(&.!/4' /,' .2*' *0.(&/(1!4&(5' &41' :0!4:0*44!&;' 3&-(!F ,!-*3' .2*' -/3./,' A2!-2' A&3' 1*,(&5*1' <5' .2*' 70<;!-' .(*&30(5' 4/.2*(' -/;;*>*' /,' .2(*' /(' .*4' (' &77/!4.*1' <5' .2*' (*/7&>03' 307*(!4.*41*1' .2*' 3&-(!,!-*3' /,,*(*1' ./' .2*' 06,!4!1>3' <5' .2*' 3.&.*

!*(/3-/75 8 (' (' H=!*A!4>' .2*' 3&-(!,!-*I9' ' ,/(6' /,' 1!=!4&.!/4' <5' 6*&43' /,' .2*' *4.(&!;3' /,' 3&-(!,!-*1' <*&3.3' # ' 0 G$

4 J (1.(B/*1!&ˢ !.'ʷ H >&5ˢ &41ˢ ;!=*;5ˢ .(&>*15I9ˢ ˢ 37*-!*3ˢ /,ˢ -/6*15ˢ !4=*4.*1ˢ <5ˢ 2!4.</4ˢ /,ˢ &(*4.06ˢ &41ˢ -/43!3.F !4>ˢ /,ˢ &ˢ .(&=*3.5ˢ /,ˢ .(&>!-ˢ .2*6*3ˢ & ˢ (& &

!;1*32*!6ˢ .2*ˢ (*&30(*ˢ /,ˢ ˢ 406<*(ˢ /,ˢ 1(!4D!4>ˢ =*33*;3ˢ 7;&.*3ˢ &41ˢ -//D!4>ˢ 0.*43!;3ˢ /,ˢ 3!;=*(ˢ 6/3.ˢ /,ˢ .2*6ˢ *6</33*1ˢ !4ˢ 2!>2ˢ (*;!*,ˢ ,/041ˢ &.ˢ !;1*32*!6ˢ !4ˢ $R?Rˢ 2*3*ˢ !67/(.&4.ˢ 7(/10-.3ˢ /,ˢ /6&4ˢ &(.ˢ /,ˢ .2*ˢ .!6*ˢ /,ˢ 0>03.03ˢ &(*ˢ 4/Aˢ &6/4>ˢ .2*ˢ -2!*,ˢ &..(&-.!/43ˢ /,ˢ .2*ˢ *(;!4ˢ 03*06ˢ 2*5ˢ 7(/<&<;5ˢ <*;/4>*1ˢ ./ˢ .2*ˢ .&<;*ˢ 3*(=!-*ˢ /,ˢ 3/6*ˢ A*&;.25ˢ /6&4ˢ &41ˢ 2&1ˢ <**4ˢ 2!1F 1*4ˢ !4ˢ .2*ˢ >(/041ˢ <5ˢ *(6&43ˢ A2/ˢ 2&1ˢ .&D*4ˢ .2*6ˢ &3ˢ .2*ˢ 37/!;3ˢ /,ˢ =!-./(5ˢ (.!3F .!-&;;5ˢ .2*ˢ 6/3.ˢ !67/(.&4.ˢ 7!*-*3ˢ &(*ˢ &ˢ </A;ˢ 32&7*1ˢ ;!D*ˢ &ˢ <*;;ˢ &41ˢ >(&-*,0;;5ˢ 1*-/(&.*1ˢ *0.*(4&;;5ˢ A!.2ˢ &(&<*3:0*3ˢ &41ˢ ,!>0(*3ˢ /,ˢ -2!;1(*4ˢ & ˢ -0.9ˢ &41ˢ ,/0(ˢ 6&>4!,!-*4.ˢ 3&0-*(3ˢ 1*-/(&.*1ˢ A!.2ˢ &ˢ >!;.ˢ !4*(=&ˢ 3*&.*1ˢ /4ˢ &ˢ (/-Dˢ &41ˢ 2&;,";*4>.2ˢ ,!>0(*3ˢ /,ˢ .2*ˢ 5/04>ˢ *(-0;*3ˢ 3;&5!4>ˢ .2*ˢ 3*(7*4.3ˢ &41ˢ /,ˢ 5<*;*ˢ &41ˢ /,ˢ ..!3ʷ &;3/ˢ .A/ˢ -073

(!>2.ˢ &(6ˢ &41ˢ ;*,.ˢ .2*ˢ (!>2.ˢ 32/0;1*(ˢ *OF 7/3*1ˢ /6*4ˢ A/(*ˢ .2*ˢ ("ˢ !4ˢ .2*ˢ 3&6*ˢ 6&!6*(ˢ <0.ˢ 3/6*ˢ 1(*Aˢ !.ˢ /=*(ˢ .2*!(

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&1/(4*1ˢ A!.2ˢ 6&3D3ˢ &41ˢ &;;ˢ D!413ˢ /,ˢ *6F <;*63ˢ /,ˢ .2*ˢ A/(32!7ˢ /,ˢ &--203

;6;!.!14ˢ &(.ˢ /,ˢ .2*ˢ /0.1//(ˢ 1(*33ˢ /,ˢ (**D3ˢ /,ˢ ,(**ˢ <!(.2ˢ A/(4ˢ /=*(ˢ .2*ˢ "ˢ &41ˢ (*&-2!4>ˢ &.ˢ ;*&3.ˢ &3ˢ ,&(ˢ &3ˢ .2*ˢ D4**3ˢ .ˢ A&3ˢ &4ˢ / /4>ˢ 7!*-*ˢ /,ˢ 1(&7*(5ˢ /4*ˢ *41ˢ /,ˢ A2!-2ˢ A&3ˢ ,!(3.ˢ .2(/A4ˢ /=*(ˢ .2*ˢ ;*,.ˢ 32/0;1*(ˢ .2*4ˢ <(/0>2.ˢ ,/(A&(1ˢ &41ˢ 2*;1ˢ ,&3.ˢ <5ˢ .2*ˢ ;*,.ˢ &(6ʷ .2*ˢ >&(6*4.ˢ A&3ˢ .2*4ˢ 1(&A4ˢ /=*(ˢ .2*ˢ 32/0;1*(ˢ ./ˢ .2*ˢ (!>2.ˢ 3!1*ˢ !4ˢ 30-2ˢ &ˢ 6&44*(ˢ .2&.ˢ .2*ˢ (!>2.ˢ 3!1*ˢ A&3ˢ -/67;*.*;5ˢ -/=*(*1ˢ 07ˢ ./ˢ .2*ˢ 32/0;1*(ˢ &--/(1!4>ˢ ./ˢ .2*ˢ 6/(*ˢ *;*>&4.ˢ ,&32!/4ˢ 8,!>ˢ $9ˢ .2*(A!3*ˢ !.ˢ A*4.ˢ /4ˢ 061*(ˢ .2*

2*&1ˢ 3/ˢ &3ˢ ./ˢ ;*&=*ˢ /4;5ˢ .2*ˢ ,&-*ˢ =!3!<;*ˢ 8,!>ˢ @9ˢ ˢ " &+ ˢ &41ˢ '

;6 ,!3ˢ ˢ (**Dˢ /72!3.ˢ </6ˢ &.ˢ 63&ˢ !4ˢ !.254!&ˢ &</0.ˢ $Vˢ &41ˢ *10F -&.*1ˢ &.ˢ .2*43ˢ A2*(*ˢ &,.*(ˢ *0.*41!4>ˢ 2!3ˢ D4/A;*1>*ˢ <5ˢ .(&=*;;!4>ˢ 2*ˢ <*-&6*ˢ &ˢ .*&-2*(ˢ /,ˢ (2*./(!-ˢ 3ˢ 30-2ˢ 2*ˢ A&3ˢ 3/ˢ 30--*33,0;ˢ .2&.ˢ 2*ˢ (*-*!=*1ˢ .2*ˢ (!>2.3ˢ /,ˢ -!.!Q*432!7ˢ &41ˢ <*-&6*ˢ &ˢ 6*6<*(ˢ /,ˢ .2*ˢ (*/7&>03ˢ 6/4>ˢ 2!3ˢ 707!;3ˢ A*(*ˢ &3!;ˢ .2*ˢ (*&.ˢ &41ˢ (*>/(5ˢ /,ˢ &Q!&4Q03*ˢ ,/(ˢ &;.2/0>2ˢ 2!63*;,ˢ &ˢ 7&>&4ˢ 4*=*(F .2*;*33ˢ ;!D*ˢ !<&4!03ˢ 2*ˢ *02!<!.*1ˢ 4/ˢ &4!6/3!.5ˢ &>&!43.ˢ 2(!3.!&43ˢ *ˢ A&3ˢ 3066/4*1ˢ ./ˢ 4.!/-2ˢ <5ˢ 0;!&4ˢ &41ˢ &77/!4.*1ˢ 2!3ˢ 7(!=&.*ˢ 3*-(*.&(5ˢ 4ˢ .2*ˢ *67*(/(3ˢ 1*&.2ˢ 8 ? 9ˢ 2*ˢ (*.0(4*1ˢ ./ˢ 2!3ˢ *&(;!*(ˢ /--07&.!/4ˢ &.ˢ .2*43ˢ &41ˢ .2*(*ˢ 1!*1ˢ &,.*(ˢ <*-/6!4>ˢ <;!41ˢ !4ˢ 2!3ˢ /;1ˢ &>*ˢ &</0.ˢ R?ˢ ,ˢ 2!3ˢ 37**-2*3ˢ &41ˢ 1*-;&6&F .!/43ˢ .A*4.5",/0(ˢ *0!3.ˢ !4ˢ &ˢ -/67;*.*ˢ ,/(6ˢ .*4ˢ !4ˢ ,(&>6*4.3ˢ &41ˢ .2!(.5"3!0ˢ !4ˢ .2*ˢ 3066&(!*3ˢ &41ˢ "*0-*(7.3ˢ 7(*3*(=*1ˢ <5ˢ 2/.!03ˢ !3ˢ 3.5;*ˢ !3ˢ /(4&.*ˢ .0(>!1ˢ &41ˢ /=*(;&1*4ˢ A!.2ˢ *(01!.!/4ˢ *ˢ /A*3ˢ Dˢ 37*-!&;ˢ !67/(.&4-*ˢ 3/;*;5ˢ ./ˢ .2*ˢ ,&-.ˢ .2&.ˢ 2!3

37**-2*3 -/4.&!4 6&.*(!&;3 ,/(.2* 2!3./(5 /, .2* *=*4.3 &41 /, .2* 6&44*(3 /, 2!3 .!6*

!6B(13 2* 7*(3/4!,!-&.!/4 /, ;/4>!4 &41 1*3!(* &41 -/67&4!/4 /, (/3&

!77,!>(.& 2* .2(** /,! -*(3 -2/3*4 &. &-*1&*6/4 25 .2* *72/(3 ./ -/66&41 .2* 2/(3*6*4A2/,/(6*1 .2* </15>0&(1 /, .2* D!4>3

!77&(-2 8 ((9 2* (**D 4&6* ,/(& -/66&41*(/, -&=&;(5 83** 4 .2* K ./;!&4 &41 -2&*&4 ;*&>0*3 .2!3 4&6* A&3 </(4* <5 &4 /,;,!-*(-2&(>*1 A!.2 /.2*(,04-.!/43 <*3!1*3 A2/ A&3 !4 (&4D 3*-/41 /4;5 ./ .2* 1

!77&(-2&3 (**D 6&.2*6&.!-!&4 .2* ,/041*(/, 3-!*4.!,!-&3.(/4/65 </(4 &. !-&*& !4 !.254!& ;!=*1 -2!*,;5 &. 2/1*3 &41 ;*0&41(!& &41 1!*1 &</0. $@V *1!3-/=*(*1 .2* 7(*-*33!/4 /, .2* *:0!F 4/0*3 3*..;*1"6/(* &--0(&.*;5 .2* ;*4>.2 /, .2* 3/;&(5*&(&3&;3/ /, .2* (*=/;0./!/4 /, .2* 6//4 &41 .2* 6&>4!.01* &41 1!3F .&4-*3 /, .2* 2*&=*4;5 </1!*3 *7;&-*1 6&.2*6&.!-&; >*/>(&725 /4 &,!(6*(<&3!3 <5 .*&-2!4> .2* &77;!-&.!/4 /, .2* ;&.!.01* &41 ;/4>!.01* /, .2* 3.&(3 ./6&(D!4> .2* 7/3!.!/4 /, 7;&-*3 /4 .2* 30(,&-* /, .2* *&(.2 ,2!3 406*(/03 A(!.!4>3 A* /4;5 7/33*33 2!3 -/66*4.&(5 /4 .2* ,(" " /, 01/003 &41 (&.03 &41 &-&.&;/>0* /, $N@? ,!O*1 3.&(3

!77&(6/3.*3 ;*&1*(/, .2* 7&(.&4 -&=&;(5 &

!77*!3 2* (**D .*(6 /,(!1*(3 &41 D4!>2.3 8$9 6/4> .2* .2*4!&43 .2* -!.!Q*43 A2/3* 7(/7*(.5 :0&;!,!*1 .2*6 ,/(.2* 3*-/41 -;&33 & $ " A5 8@9 6/4> .2* 7&(.&43 .2* (/5&; >0&(1 /, 2/4/0(-/43!3.!4> /, NN -2/3*4 7&(.&4 5/0.23 041*(.2* &>* /, .2!(.5 A2/ &;.2/0>2 /(!>!4&;;5 6/04.*1 &,.*(F A&(13 3*(=*1 &3 2*&=5"&(6*1 ,//."3/;1!*(3 2* -&=&;(5 /, (" A2!-2 A&3 ,!(3. ,/(6*1 &,.*(.2* *(3!&4 &(&41 .2*4 -/4F 3!3.*1 /, NN 6*4 ,(/6 .2* *(!-;*&4 7*(!/1 /4A&(13 -/43!3.*1 /, ! 6*4 ! 6/04.*1 </A6*4 & - A2/ A*(* 3;&=*3 <*;/4>!4> ./ .2* 3.&.* &41 .2* -!.!Q*43 /, .2* .A/ 2!>2*3. -;&33*3 2*5 A*(* D*7. />*.2*(!4 .!6* /, 7*&-* &41 -&(*,0;;5 1(!;;*1" &. .2* >(*&. 70<;!- ,*3F .!=&;3 .2*5 .//D 7&(. !4 .2* 7(/-*33!/43 2*5 A*(* -/66&41*1 <5 .A/ ((*&-2 /, A2/6 2&1 ,!=* (041*(2!6 &41 307*(!4.*41*1 .2* ;*=5 0</(1!4&.* ./ .2*3* A*(* .2* .*4 ((!4 -/6F 6&41 /, .2* .*4 (/.2 3*.3 /, /,,!-*(3 A*(* 1(&A4 ,(/6 .2* .A/ 2!>2*3. -;&33*3 .A&3 .2* 10.5 /, .2* -/04-!; ./ 3** .2&. .2* -&=&;(5 A&3 !4 >//1 -/4F 1!.!/4 &41 &;3/ ./ *0&6!4* 4*A 6*6<*(3 !4 (*37*-. /, .2*!(* :0!76*4. &41 .2*!(* *;!>!<!;!.5 & ?)

2* 406<*(/,2/(3*6*4 ./<* 1*37&.-2*1 ./ .2* ,!*;1 A&3 1*.*(6!4*1 <5 .2* 1*-(** /, .2* 7/70;&(&33*6<;5 =*(5 -!.!Q*4" 3/;1!*((*-*!=*1 *:0!76*4."6/4*5 /4 K/!4F !4> &41 10(!4> 2!3 .!6* /, 3*(=!-* &30<F 3!15 ./A&(13 D**7!4> & >(//6 &41 .A/ 2/(3*4 .2!3 >(*A ./ <* &4 &440&; >(&4. ,(/6 .2* 3.&.* &6/04.!4> ./ ,/(.5 .&;*4.3 8 _E !4 !4.(!43!-=&;0*9 <0. (*>0;&(7&5 A&3 /4;5 >!=*4 !4 .2* ,!*;1

. 7&(.& !. A&3 4/. 6!.!; CNC .2&. & 1 </15 /, 2/(3* A&3 ,/(6*1 .2* -&=&;(5 <*!4> 60-2 4*>;*-.*1 &3 -/67&(*1 A!.2 .2* !4,&4.(5 2* (!-2 2&1 /4;5 ./ 7(/=!1* 2/(3*3 *:0!76*4. &41 &(6/0(,/(.2* &-.0&; -&=&;(5 3*(=!-* !4 .!6* /, A&(/4;5 .2/3* 04,!..*1 ,/(.2* 2*&=5F &(6*1 !4,&4.(5 A*(* 1(&,.*1 /, &41 3*4 ./ .2* ,!*;1 A!.2/0. &45 7(*;!6!4&(5 1(!;; 4 ;&.*(.!6*3 *=*(5 /, 2*&=5"&(6*1 !4,&4.(5 3** 63 ./ 2&=* 2&1 &;;/..*1 ./ !. & /, -&=&;(5 /, 04-*(.&!4 406<*(5 *4;!3.!4> 6*(-*4&(!*3 &41 !4.(/10-!4> &;!*3 !4./ .2*!(,/(-*3 .2* 7&(.&43 &. ;*4>.2 /<.&!4*1 <*..*(-&=&;(5

2* 0.!;!.5 /, .2* (**D -!.!Q*4"-&=&;(5 A&3 36&;/4&--/04./, .2*!(2*&=5&(6/0(.2*!(6*.&; 2*;6*. &41 .2*!(-/&. /, 6&!; .2*!(D!;. ,(!4>1 A!.2 6*.&; ;&73 .2*!(-0!33*3 (*&-2!4> ./ .2* D4** &41 .2*!(;*&.2*(;*>>!4>3 2*5 1!1 4/. .&D* 32!*;13 !4./ &-.!/4 3 A*&7/43 /, /,,*4-* .2*5 2&1 .2* 3.(&!>2. .A/"*1>*1 3A/(1 &41 & 37*&(03*1 *!.2*(&3 &;&4-* /(&K&=*;!4 2/*!4> /, 2/(3*3 A&3 04D4/A4 ./ .2* (**D3 &3 A&3 &;3/ .2* 03* /, 3.!((073 , &45.2!4> &. &;; A&3 03*1 &3 & 3&11;* !. A&3 *!.2*(& 3&11;*"-;/.2/(& 7!*-* /, , ;. . A2!-2 A&3 ,!(6;5 ,&3.*4*1 A!.2 >!(.23 041*(.2* 2/(3* 3 <*;;5 2* 2*33&;!&43 A*(* -/43!1*(*1 .2* <*3. (!1*(3 &=&;(5 <*-&6* (*&;;5!67/(.&4. ,/(.2* ,!(3. .!6* !4 .2* &-*1/4!&4 &(65 041*(2!;!7 &41 2!3 3/4 ;*0&41*(.2* (*&. ;.2/0>2 !4 *&(;!*(.!6*3 .2* 406<*(/, 2/(3*6*4 !4 .2* (**D ,/(-*3 A&3 /4;5 =*(5 36&;; !4 .2* &(65 A2!-2 ;*0&41*(6&(-2*1 !4./ 3!& .2*5 ,/(6*1 4*&(;5 &3!0.2 7&(. /, .2* !4,&4.(5 2* &-*1/4!&4 -&=&;(5 A&3 1!=!1*1 !4./ 2*&=5 &41 ;!>2. </.2 -/43!3.F !4> /, 3:0&1(/43 &) /, &4 &=*(&>* 3.(*4>.2 /, @NN 6*4 ,.2* 2*&=5 -&=&;(5 .2* -2/!-*3. .(//73 A*(* .2* &-*1/4!&4 &41 2*33&;!&4 2/(3*6*4 &(6*1 !4 .2*

(**D ,&32!/4 A2/ A*(* &3 ,/(6!1&<;* !4 /43;&0>2.&3!4 3!4>;* -/6<&." !4 /(1*(&41 1!3-7;!4* .2*5 ,&(30(7&33*1 .2* 1*43* 3:0&1(/43 /, .2* 3!&.!-&=&;(5 &41 *=*4 !4 &..&-D!4> .2* !4,&4.(5 /, .2* *4*65 .2*5 2&1 >*4*(&;;5&1*-!3!=* *,,*-. 2* ;!>2. -&=&;(5 2!-2 &3 -/43.!.0.*1 041*(.2* 4&6* /, / 83D!(6!32*(39 -/4F 3!3.*1/, &-*1/4!&4 3/ -&;;*1 ,(/6 .2* &;&4-* ,(/6 $C ./ $? ,**.; /4> f /;5<!03 0=!!! $@g &41 /, 2(&-!&4 2/(3*6*4 2* 2*&=5"-&=&;(5 6*4 2&1 *&-2&6/04.*1 3*(=&4.&41 7(/<&<;5&;*1 2/(3* ,/(.2* .(&437/(./, <&>>&* &41 ,/(&>* 4 .2* .!6*&,.*(;*0&41*(.2*(* -&6* !4./ *0!3.*4-* A2&.A*(* -&;;*1 .2* + " " ; ;!>2."&(6*1 37*&(F 6*4 A!.2 .A/ 2/(3*3 *&-2 f4 - $T@ !=5]]] @R @Tg

!77!&3 (**D /72!3./, ;!3 &41&/4.*67/(&(5/, /-(&.*3 *.&4>2.!4.2* /A43 /, (**-* *37*-!&;5&. .2*43 /2&1.2* &1=&4.&>* /, &7(/1!>!/03 6*6/(5 &41 A&3 1**7;5 =*(3*1 !4 &;* .2* ;*&(4!4> G/, 2!3 1&5 * &..*67.*1;!.*(&.0(*!4*=*(5 ,/(6 A2!-2 A&3 .2*4 *0.&4. * &;3/ 6&1* .2*,!(3.&..*67. !4 .2* -/67/3!.!/4 -, 1!&;/>0*3 4 .2* .A/ ;&./4!- 1!&F ;/>0*3 4&6*1 &,.*(2!6 2* !3 (*7(*3*4.*1 &3 *0-*33!=*;5 =&!4 &41 &.(/>&4.

!77S-&6743 ,&<0;/03 6&(!4* &4!6&; 32&7*1 ;!D* &2/(3* <0. 2&=!4> & -0(=*1 &41 ,!32";!D* .&!; 2* >/13 /, .2* 3*&&(* /,.*4 (*7(*3*4.*1 &3 5!1!4> /(3!..!4> /4 30-2 &4!6&;3

!771-V/4 /4 /,8 <C$03 /, 7&(.& &41 /, .2* 5672 &.*!& 1(/=* 2!3 <(/.2*(3 541&(`"3 &41 -&(!03 ,(/6 2/6* ,.*(F A&(13 !4 -/43*:0*4-* /, 2!3 3;&5!4> .2* 5/04> 8 /403 & D!436&4 /, >(&1*3 2* 2!63*;, A!.2 2!3 .A*4.5 3/43 A&3 3;&!4 <5 *(&-;*3 !4 &;;!&4-* A!.2 D!4> *72*03 ; >>>& 541&(*/3 A&3 .2*(*<5 (*3./(*1 ./ .2* !42*(!.&4-* /, 2!3 ,&.2*(3 D!4>1/6

!77V-(.*3 .2*,&6/03 (**D 7253!-!&4 A&3 </6 !4 .2* !3;&41 /, "3 8&4 &4-!*4. B*&./, .2* /(32!7 /, 3-;*7!039 &</0.C?N - * A&3 .2* 3/4 /, *(&-;*!1*3 &41 /, 23*4&(B.* &41 37(&4> ,(/6 .2*(&-* /, .2* 3-;*7,J1&* & 7(!*3.;5 ,&6!;5 A2/ !4 .2* -/0(3* /, .!6* 2&1 >&.2*(*1 &41 7(*F 3*(=*1 6*1!-&; .(&1!.!/43 A2!-2 A*(* 3*-(*.;5 2&41*1 1/A4 ,(/6 ,&.2*(./ /4 !D* 6&45 /, .2* 3-;*7!&1&* 2* *0*(-!3*1 2!3 &(.A2!;3. .(&=*;;!4> !4 1!,,*(*4. 7&(.3 /, (**-* * !3 3&!1 ./ 2&=* <**4 &. .2*43 &. .2* .!6* /, .2* *;/7/44*3!&4 &(&41 ./ 2&=* .&D*4 &1=&4.&>* /, .2* !43.(0-.!/43 /, .2* /72!3.3 /(>!&3 &41 (/1!-03

6/-(!.03 /, <1(& !3 &;3/ 4&6*1 &3 /4* /, 2!3 .*&-2*(3 2* =&;0* 2* 2!6F 3*;, 3*. 07/4 72!;/3/72!- *10-&./4 !3 7(/=*1 <5 2!3 (*6&(D .2&.P &72!;/3/72!- 72 !-!&4(*3*6<;*3 &>/1 I /A&(13 .2* *41 /, 2!3 ;!,* 2* ;!=*1 -2!*,;5 !4 2*33&;5 &41 /4 .2* !3;&41 /, 2&3/3 * 1!*1 &</0. Uhh -8/(;&.*(9 !4 .2* 2*33&;!&4 &(!33& A2*(* 2!3 ./6< A&3 ./ <* 3**4 &3 ;&. * &3 .2* @41 -*4.0(5 ;;.2(/0>2 2!3 ;/4> ;!,* 2!3 &-.!=!.5 A&3 04-*&3!4> !4 !.3 *,,/(.3 ./ !4-(*&3* .2* &6/04./, <!3 D4/A;*1>* /4 &;;30<(*-.3 <5 </.2 7(&-.!-&; &41 .2*/(*F .!-&;* !4=*3.!>&.!/43 ;!* A&3 .2* ,/041*(/, .2* 3-2//; /, &3-!*4.!,!-&(./, 2*&;!4> &41 &3 !4 .2* -&3* /, /6*(406*(/03 A(!.!4>3 /, 04D4/A4 &0.2/(32!7 7(/-**1F !4> ,(/6 .2* 3-2//; A2!-2 ,/;;/A*1 2!3 353.*6 A*(* &..(!<0.*1./ 2!6 *=*4.5 .A/ A/(D3 >(*&. &41 36&;; !4 .2* /4!- &41 /;1 ..!-1!&;*-.3 <*&(2!3 4&6* &41 &77&(*4.;5 ,/(6*1 &3 3!4>;* -/;;*-F .!/4 *=*4 <*,/(* .2*5 -&6* 041*(.2* -/4 % 3!1*(&./4/, .2* -(!.!-3/, ;*0&41(!& 0. !. !3 -;*&(.2&. &3 .2* &4-!*4.3 .2*63*;=*3 A*(* &A&(* /4;5 &36&;; 7(.!/4 A2!-2 -&4 4/ ;/4>*(<* 7(*-!3*;5 1*,!4*1 (*&;5 <*;/4>3 ./ 2!6 . !3 2!>2;5 7(/<&<;* .2&. 2!3 4*&(*3. (*;&./43 A2/ A*(* &;3/ 1!3.!4F >0!32*1 7253!-!&43 -/4.(!<0.*1 .2*!(32&(* ./ .2* -/;;*-.!/4 &41 .2&.! .-/4.&!43 A/(D3 <5 2!3 3/43 2*33 ;03 &41 (-/4 2!3 4 !4";&A ;B<03 &41 2!3 .A/ >(&413/43 .2* 3/43 /, 2* 3&;03 &41 (&-/4 A2/ </(* 2!3 /A4 4&6* 2* <*3. D4/A4 /, .2*3* A/(D3 &(* .2* (!A2!-2 !4 &4.!F :0!.5 &41 !4 6*1!&*=&;.!6*3 A*(* 2*;1 !4 2!>2 *3.**6 &41 2&=* <**4 ,(**;5 -/6F 6*4.*1 /4 <5 (**D3 /6&43 &41 (&<!&43" .2*5 -/43!3. /, 32/(. 3*4.*4-*3 07/4 .2* 4&.0(* /, !;;4*33*3 .2*!(35 67./63 &41 -(!3*3 &41 .2*!(,!4&; !330* 4* /, 2!3 A(!.!4>3 A2!-2 !3 /, >*4*(&; !4.*(*3. &41 !3 !4 &;; (*37*-.3 &6/4> .2* <*3. !3 .2&. /4 !4 &4.!F B*&./, .2* /(32!7 /, 3-;*7!039 &</0.C?N - * A&3 .2* 3/4 /, *(&-;*!1*3 &41 /, 23*4&(B.* &41 37(&4> ,(/6 .2*(&-* /, .2* 3-;*7,J1&* & 7(!*3.;5 ,&6!;5 A2/ !4 .2* -/0(3* /, .!6* 2&1 >&.2*(*1 &41 7(*F 3*(=*1 6*1!-&; .(&1!.!/43 A2!-2 A*(* 3*-(*.;5 2&41*1 1/A4 ,(/6 ,&.2*(./ /4 !D* 6&45 /, .2* 3-;*7!&1&* 2* *0*(-!3*1 2!3 &(.A2!;3. .(&=*;;!4> !4 1!,,*(*4. 7&(.3 /, (**-* * !3 3&!1 ./ 2&=* <**4 &. .2*43 &. .2* .!6* /, .2* *;/7/44*3!&4 &(&41 ./ 2&=* .&D*4 &1=&4.&>* /, .2* !43.(0-.!/43 /, .2* /72!3.3 /(>!&3 &41 (/1!-03

6/-(!.03 /, <1(& !3 &;3/ 4&6*1 &3 /4* /, 2!3 .*&-2*(3 2* =&;0* 2* 2!6F 3*;, 3*. 07/4 72!;/3/72!- *10-&./4 !3 7(/=*1 <5 2!3 (*6&(D .2&.P &72!;/3/72!- 72 !-!&4(*3*6<;*3 &>/1 I /A&(13 .2* *41 /, 2!3 ;!,* 2* ;!=*1 -2!*,;5 !4 2*33&;5 &41 /4 .2* !3;&41 /, 2&3/3 * 1!*1 &</0. Uhh -8/(;&.*(9 !4 .2* 2*33&;!&4 &(!33& A2*(* 2!3 ./6< A&3 ./ <* 3**4 &3 ;&. * &3 .2* @41 -*4.0(5 ;;.2(/0>2 2!3 ;/4> ;!,* 2!3 &-.!=!.5 A&3 04-*&3!4> !4 !.3 *,,/(.3 ./ !4-(*&3* .2* &6/04./, <!3 D4/A;*1>* /4 &;;30<(*-.3 <5 </.2 7(&-.!-&; &41 .2*/(*F .!-&;* !4=*3.!>&.!/43 ;!* A&3 .2* ,/041*(/, .2* 3-2//; /, &3-!*4.!,!-&(./, 2*&;!4> &41 &3 !4 .2* -&3* /, /6*(406*(/03 A(!.!4>3 /, 04D4/A4 &0.2/(32!7 7(/-**1F !4> ,(/6 .2* 3-2//; A2!-2 ,/;;/A*1 2!3 353.*6 A*(* &..(!<0.*1./ 2!6 *=*4.5 .A/ A/(D3 >(*&. &41 36&;; !4 .2* /4!- &41 /;1 ..!-1!&;*-.3 <*&(2!3 4&6* &41 &77&(*4.;5 ,/(6*1 &3 3!4>;* -/;;*-F .!/4 *=*4 <*,/(* .2*5 -&6* 041*(.2* -/4 % 3!1*(&./4/, .2* /(32!7 /, 3-;*7!039 &</0.C?N - * A&3 .2* 3/4 /, *(&-;*!1*3 &41 /, 23*4&(B.* &41 37(&4> ,(/6 .2*(&-* /, .2* 3-;*7,J1&* & 7(!*3.;5 ,&6!;5 A2/ !4 .2* -/0(3* /, .!6* 2&1 >&.2*(*1 &41 7(*F 3*(=*1 6*1!-&; .(&1!.!/43 A2!-2 A*(* 3*-(*.;5 2&41*1 1/A4 ,(/6 ,&.2*(./ /4 !D* 6&45 /, .2* 3-;*7!&1&* 2* *0*(-!3*1 2!3 &(.A2!;3. .(&=*;;!4> !4 1!,,*(*4. 7&(.3 /, (**-* * !3 3&!1 ./ 2&=* <**4 &. .2*43 &. .2* .!6* /, .2* *;/7/44*3!&4 &(&41 ./ 2&=* .&D*4 &1=&4.&>* /, .2* !43.(0-.!/43 /, .2* /72!3.3 /(>!&3 &41 (/1!-03

6/-(!.03 /, <1(& !3 &;3/ 4&6*1 &3 /4* /, 2!3 .*&-2*(3 2* =&;0* 2* 2!6F 3*;, 3*. 07/4 72!;/3/72!- *10-&./4 !3 7(/=*1 <5 2!3 (*6&(D .2&.P &72!;/3/72!- 72 !-!&4(*3*6<;*3 &>/1 I /A&(13 .2* *41 /, 2!3 ;!,* 2* ;!=*1 -2!*,;5 !4 2*33&;5 &41 /4 .2* !3;&41 /, 2&3/3 * 1!*1 &</0. Uhh -8/(;&.*(9 !4 .2* 2*33&;!&4 &(!33& A2*(* 2!3 ./6< A&3 ./ <* 3**4 &3 ;&. * &3 .2* @41 -*4.0(5 ;;.2(/0>2 2!3 ;/4> ;!,* 2!3 &-.!=!.5 A&3 04-*&3!4> !4 !.3 *,,/(.3 ./ !4-(*&3* .2* &6/04./, <!3 D4/A;*1>* /4 &;;30<(*-.3 <5 </.2 7(&-.!-&; &41 .2*/(*F .!-&;* !4=*3.!>&.!/43 ;!* A&3 .2* ,/041*(/, .2* 3-2//; /, &3-!*4.!,!-&(./, 2*&;!4> &41 &3 !4 .2* -&3* /, /6*(406*(/03 A(!.!4>3 /, 04D4/A4 &0.2/(32!7 7(/-**1F !4> ,(/6 .2* 3-2//; A2!-2 ,/;;/A*1 2!3 353.*6 A*(* &..(!<0.*1./ 2!6 *=*4.5 .A/ A/(D3 >(*&. &41 36&;; !4 .2* /4!- &41 /;1 ..!-1!&;*-.3 <*&(2!3 4&6* &41 &77&(*4.;5 ,/(6*1 &3 3!4>;* -/;;*-F .!/4 *=*4 <*,/(* .2*5 -&6* 041*(.2* -/4 % 3!1*(&./4/, .2* /(32!7 /, 3-;*7!039 &</0.C?N - * A&3 .2* 3/4 /, *(&-;*!1*3 &41 /, 23*4&(B.* &41 37(&4> ,(/6 .2*(&-* /, .2* 3-;*7,J1&* & 7(!*3.;5 ,&6!;5 A2/ !4 .2* -/0(3* /, .!6* 2&1 >&.2*(*1 &41 7(*F 3*(=*1 6*1!-&; .(&1!.!/43 A2!-2 A*(* 3*-(*.;5 2&41*1 1/A4 ,(/6 ,&.2*(./ /4 !D* 6&45 /, .2* 3-;*7!&1&* 2* *0*(-!3*1 2!3 &(.A2!;3. .(&=*;;!4> !4 1!,,*(*4. 7&(.3 /, (**-* * !3 3&!1 ./ 2&=* <**4 &. .2*43 &. .2* .!6* /, .2* *;/7/44*3!&4 &(&41 ./ 2&=* .&D*4 &1=&4.&>* /, .2* !43.(0-.!/43 /, .2* /72!3.3 /(>!&3 &41 (/1!-03

.2*' A/(D3' /,' (**D' &41' /6&4' A(!.*(3' 4/A' ;/3.' ' -/43!1*(&<;*' 7&(.' /,' .2!3' 3.!;;' (*F 6&!43')' # ' /,' &6&3-03' A2/' ;!=*1' &';!..;*' ;&.*(' A&3' .2*' &0.2/(' /,' &' >(*&.' >*4*(&;' 2!3./(5' /,' A2!-2' A*' 2&=*' -/43!1*(F &<;*',(&>6*4.3' *'+ ' '/,' &;!-&(4&3303' -/67/3*1' &',*A' 5*&(3' <*,/(*' 2(!3.' 2!3' 7 "' (@ 1:' &</0.' 2&;',' /,' A2!-2' 2&3' 30(=!=*1' 2!3' A&3' .2*' &4-!*4.' 2!3./(5' /,' /6*' 1/A4' ./' .2*',!(3.' 04!-' &(' A(!.F .*4' A!.2' .&3.*&41'-&(*' 4' .2*'3*-/41'2&;,'/,' .2*' $3.' -*4.0(5' $' .2*' *<(*A' 2 $.%31!4' A(/.*' 2!3' . @ (' (1:2&41' 2!3' R :' ' (' .@ (' M ' .' .2*' <*>!44!4>' /,' .2*' !41' -*4.0(5' (' /,' 23*' (4*&7(/10-*1' 2!3'*0-*;;*4.' <!/>(&72!*3' /,' ,&6/03' (**D3' &41' /6&43' 4' .2*' -/0(3*' K7,' .2*' 3&6*' -*4.0(5' &77*&(*1' .2*' (< ' /,' ;*0&41*(' .2*' (*&.' A(!..*4' &,.*(' .2*' <*3.' &0.2/(!.!*3' <5' ' /,' !'-/6*1!&' .2*' 1 '/,'.2*' &-*1/4!&4' ,' #$' &' 406<*(' /,' *0&67;*3' /,' .4!;!.&(5' 3.(&.&>*63'-/;;*-.*1',(/6' /;1*(' A(!.*(3' &41' &'7&(./,'.2*' 7 "' :' /,'.2*' ;*0&4F 1(!&4' ' *.24/>(&72!-&' 5' &((&4>*1' .' .2*' <*>!44!4>' /,' .2*' (1' -*4.0(5' !/' ' /,' !-3*&' -/4-*!=*1' &41' *0*-0.*1' 2!3' >(*&.' A/(D' /4' /6&4' 2!3./(5' A2!-2' 2&3' 04,/(.04&.*;5'-/6*' 1/A4'./' 03' !4' &' =*(5' 60.!;&.*1',/(6' !3'5/04>*('-/4.*67/(&(5' +$' ' A(/.*' &4' !4.*(*3.!4>' :' ' (' $ ' A2!-2' 3.!;;' 30(=!=*3' ,(/6' .2*' 1*&.2' /,' &(-03' 0(*;!03' ./' /(1!&4' 4-!*4.'-2(/4/;/>5'!3'60-2'!41*<.*1'./'.2*' $(" ' /,' " '<!32/7' /,' 3*3&(*&' 2!3' A&3' A(!..*4'!4'.2*' C.2'-*4.0(5' $ ' &41' /4;5' 30(=!=*3' !4' .(&43;&.!/43' 6/4>';&.*(' A(!.*(3' A*' 6&5' 6*4.!/4' " ' ' 8!4' .2*' 3*-/41'2&;,' /,' .2*' ".2'-*4.659' .2*' &0.2/(' /,' &' 2!3./(5' /,' .2*' *67*(/(3',(/6' 0>03.03' #6' C$N') 8 9' " " ' 7 "' :' 2*' <*F >!44!4>3' /,' /6&4' 2!3./(5' >/' <&-D' ./' &</0.' @8]9' -' 2*' ,/(6' /,' -/67/3!.!/4' A&3' 04.!;' .2*' ,!(3.'2&;,' /,' .2*' 3.'-*4.0(5' &;6/3.'*0-;03!=*;5'.2&.' /,' &440;3' &41' .2*' 2!3./(!&43'7(*=!/03' ./' .2&.' 1&.*' &(*' !4' -/43*:0*4-*' 030&;;5'-/67(!3*1' 041*(' .2*' .*(6' &44&;!3.3' 8 /(' .2*' 37*-!&;' (*7(*F 3*4.&.!=*3' /,' .2!3' 3.5;*' ' ' 2*5'-/4,!4*1' .2*63*;=*3'*0-;03!=*;5'./' .2*' 2!3./(5' /,' .2*!(' -/04.(5'K4'!.3'A!1*3.'*0.*4.' ,(/6' .2*' *&(;!*3.'.!6*3' ./' .2*!(' /A4' 4' ;&.*(' .!6*3'<0.' 4/.' .!;;' .2*4' /6&4' 2!3./(!&43' 041*(./!D' ./' A(!.*' /4' .2*' *=*4.3' /,' 37*-!&;' 7*(!/13'>*4*(&;;5'/4' .2/3*' /,' .2*!(' /A4' .!6*' 2*' *&(;5' &44&;!3.!-' A(!.*(3' 2&1' 4/' 3.5;*' .' !3' 4/.' 04.!;' .2*' D4/A(F ;*1>*' /,' (**D' ;!.*(&.0(*' &41' .2*' 1*=*;/7(F 6*4.' /,' (2*./(!-&;' 3.5;*' 2&3' (*&-2*1' &' 2!>2*(' 3.&>*' !4' .2*' 3*-/41' 2&;,' /,' .2*' !41' -*4.0(5' (' .2&.' &45' &..*67.' &.' >//1' A(!.!4>' !3' 1!3-*(4!<;*' 2*' ,!(3.' !41!-&.!/4' /,' 30-2' &4' &..*67.' !3' .2*' .*41*4-5' ./' (2*F ./(!-&;' /(4&6*4.&.!/4' 4' .2*' !-*(/4!&4' &>*' .2*' &(.' /,' 7(/3*' A(!.!4>' 2&1' >(*&.;5' &1=&4-*1' &41' 6&45' 6*4' /,' 6&(D' 1*=/.*1' .2*63*;=*3' ./' 2!3./(5' /6*' *41*&=/0(*1' ./' !4-;01*' ,/(*!>4' 2!3. !5' A!.2!4' .2*' ;!4*3' 7,' .2*!(' 4&((&.!=*' 2!3' A&3' .2*' -&3*' ,/(' !43.&4-*' A!.2' ') " ' !4' 2!3' >(*&.'<!/>(&72!-&;' A/(D' 5' 3' 2 ' 2*' <!/>(&72!*3' A2!-2' (*6&!4' &(*' 6/3.;5' !/3*' /,' 4/4'*' /6&4' >*4*(&;3' 5$' &41' & ' 30!7&33' &;' .2*' /.2*(' <!3./(!-&;' A(!.*(3' /,' .2!3' 7*(!/1' </.2' !4' ,/(6' &41' 6&..*(' &;;03.' !3' &4' !6!.&./(' /,' 20-51!1*3' &41' .2*' ,!(3.' /6&4' 2!3./(!&4' A2/'-&4';&5'&45'-;&!6'./' ,!4!32*1'*0*F -0.!/4' 2*' /.2*(' 2!3./(!&43' /,' .2!3' 7*(!/1' A2/3*' A/(D3' 2&=*' -/6*' 1/A4' ./' 03' &(*' ! ! 3' A2/' -/4.!40*1' &*3&(3' $< "2 ' &41' .2*' &0.2/(3' /,' .2*' ;*0&41(!&4' ,(!-&4' &41' 7&4!32' &(3 2*' 0>03.&4' &>*' 7(/10-*1' .2*' /6&4' 2!3./(5' /,' +*' &' A/(D' &3' (*6&(D&<;*',/(' !.3' -/67(*2*43!=*4*33' &3' ,/(' !.3' ;!.*(&;B' ,!4!32' 2*' >(*&.*(' 7&(.' /,' !.' !3' 042&77!;5' ;/3.' 2*' ,!(3.'>*4*(&;' 2!3./(5' A(!..*4' !4' &.!4'<5' . ' " '<*;/4>3' ./' .2*' 3&6*' 7*(!/1' 2!3' !3' /4;5' 7(*3*(=*1' !4' &4' *7!./6*' <5' / ' ' 2*' $3.' -*4.0(5') ' A&3',(0!.,0;'/,'2!3./(!-&;'!.*(&.0(*'<0.' /4;5'&'-*(.&!4'406<*(' /,' A(!.!4>3'2&=*'30(F =!=*1'K' &'32/(.'3D*.-2'/,' /6&4'2!3./(5'<5' 0 ' A2!-2' !3' 0410;5' !4,;0*4-*1' <5' .2*'37!(!.' /,' -/0(.'&10;&.!/4' &'-/;;*-.!/4',' 2!3./(!-&;'&4*-1/.*3'<5'0 1 ' ' &'=*(5'(2*./(!-&;'2!3./(5' ./' ;*0&41*(' .2*' (&.' <5' 0 !03' 2 3' 4 &41'&'406<*(' /,' !43.&4-*3' /,' 6!;!.&(5'3.(&F .&>*63'<5' 0 !03' ' ' 2*' >(*&.' 2!3./(5' /,' .2*' *67!(*' -/67(!3*1' !4' .2*' "" '&41' '/,' ;-; '/4*'/,'.2*' 6/3.'!67/(.&4.'6/406*4.3'/, /6&4';!.*F (&.0(*' A&3' A(!..*4' 7&(.;5' !4' .2*' 3.'&41' 7&(.;5' !4' .2*' !41' -*4.0!5' $' 4' .2*' <*>!44!4>' /,' .2*' @41' -*4.0(5' &' 6'2&=' & 5;' ' (' $ ' &41' .2*' 7&4*>5,!-&;'&--/04.' /,' /6&4' 2!3./(5' <5'

,.*(' .2!3' 7*(!/1' 0*./4!03' <*-/6*3' .2*' 6/1*;' /,' 2!3./(!&43' &41' .2*!(' ,&=/0(!.*' 30<F K*-.' .2*' 1/!4>3' /,' .2*' *67*(/(3' &41' .2*' !67*(!&;' -/0(.' 2*3*' ;/3.' A(!.!4>3' A*(*' .2*' 6&!4' 3/0(-*3' /,' .2*' 1 '&' -/;;*-.!/4' /,' <!/>(&72!*3' /,' .2*' *67*(/(3' ,(/6' &1(!&4' ./' 06*(!&4' 8$$U"@RC' &+

(2*' -/67!;&.!/4' !3' (01*' &41' 04-(!.!-&;' <0.' 2!3./(!-&;'5'!67/(.&4.' .'!3'.2*'A/(D'/,'3!0' 1!,,*(*4.'&0.2/(3'<*;/4>!4>'./'.2*'*41'/,'.2*' (1'&41'.2*'<*>!44!4>'/,'.2*'C.2'-*4.0(!*3' //4'&,.*(' .2*' 6!11;*' /,'.2!3'-*4.0(5')) '1 ('A(/.*' &' 32/(.'2!3./(5'/,' .2*' &*3&(3' &41') J) ' &41' >) ' *7!./6*3'& D ' /,'&;;' /6&4'2!3./(5' 2*'-;*&(4*33'&41'3!67;!-!.5'/,' 7.(/7!03' </!D'2&3'6&!4.&!4*1'!.3'7/70;&(!.5'1/A4'./' 6/1*(4' .!6*3' &:/) ' O (A) ' (!3*3' ,&(' &</=*' .2*' 2*&13'/,' 2!3' -/4.*6"' 7 &(!*3'G *' A&3' &' 8 (**D' <5' <!(.2' &41' A(/.*'&'-/4.!40&.!/4'/,' &-!.03',(/6'T?" UR' '/4;5' .2*' 3*-/41' 2&;,' /,' A2!-2' 2&3' /6* 1/A4' ./' 03' ,.*(' 2!6' <*>!43' .2*' *7/-2',' 2(!3.!&4'2!3./(!&43' 1'$) A( ) ' $ +) ' &41' 5) ' 7*-!&;' 6*4.!/4' 32/0;1'<*' 6&1*' /,' / *&) ' A2/' .(&43F ;&.*1' &41' 6&1*' &11!.!/43'./' .2*' 6(" "' /,' 03*<!03

/6*(' 8 (' / G ' 8$9' 2*' 7/*.' B2/3*' 4&6*' !3' </(4*' <5' .2*' .A/' /;1*3.' &41

8$9' ' ' '

8 ,. 3/4-!' &;&-*' /.31&6 9

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&.' .2*' 3&6*' .!6*' >(&41*3.' 6/406*4.3' /,' .2*' (**D' >*4!03' .2*' *7!-' 7/*63' -&;;*1' .2*' ;!&1'&41'.2*' 1533*5' /4-*(4!4>'.2*' 7*(3/4&;!.5' /,' .2*' 7/*.' 2!3' -/04.(5' &41' 2!3' .!6*' A*' 2&=*' 4/' .(03.A/(.25' !4,/(F 6&.!/4' =*4' .2*' 7*(3/4&;' *0!3.6!-*' /,' .2*' 7/*.' 2&3' <**4' 1!370.*1' &41' !.' 2&3' /,.*4' <**4' &..*67.*1' ./' 7(/=*' ,(/6' .2*' 6*&4!4>' /,' .2*' 4&6*' .2&.' 2*' A&3' 4/.' &4' !41!=!10&;' <0.' &4' !1*&;' .57*' .' 2&3' <**4 2*;1' .2&.' /6*(' 6*&43' *!.2*(' ' /(' ' &41' !.' 2&3' <**4' 3077/3*1' .2&.' !4' .2*' ,/(6*(' -&3*' .2*' 4&6*' !41!-&.*3' .2*' !1*&;' (*7(*3*4.&.!=*' /,' .2*' *7!-' 7/*6' !4' !.3' 04!,!*1' &41' &(.!3.!-&;;5' -/67;*.*1' ,/(6' A2!;3.' .2*' /.2*(' *07;&4&.!/4' !' 30>>*3.!=*' /,' &4' !1*&;' &4-*3./(' &41' 7&.(/4' /,' &4' *0F -;03!=*' /(1*(' /,' 6!43.(*;3' 0.' &3' /6*(' 6' &'7(/7*(' 4&6*' !67;5'6*.6!4>' (1 !' A!.2/0.' &45' -/44*0!/4' A!.2' 7/*.(5' .2*(*' !3' 4/.2!4>' !4' .2*' 4&6*' !.3*;' ./' >!=*' /--&3!/4' ./' &45'1/0<.' &3' ./' .2*' *0!3.*4-*' /,' /6*(' &3' &4' 2!3./(!-&;' 7*(3/4&>*' 4' &4.!:0!.5' 3*=*4' 7;&-*3' -/4.*41*1' ,/(' .2*' 2/4/0(' /,' <*!4>' 2!3' <!(.27;&-*\ 65(4&' 2/1*3' <; 72/4' T$26!3 8!4' 57(039' 2!/3' (>/3' &41' .2*43' 5*.' .2*(*' !3' 4/' 1/0<.' .2&.' .B' /6*(!-' 7/*63' /(!>!4&.*1' /4' .2*' A*3.' -/&3.' /,' 3!&' !4/('&41' .2*' /;1*(' .(&1!./4' !3',&!(;5'-/((*-.'!4',!0!4>'/4' .2*' 8 /;!&4' 65(4&' &3' 2!3' 2/6*' &41' /4' .2*' /4!&4'!3;&41'/,' 2!/3' &3'.2*'7;&-*'A2*(*' 2!3'7/*.!B'A&3'-/67/3*1' 2*'B/;!-'-/;/0(F !4>'/,' .2*' /4!-' 1!&;*-.' A2!-2',/(63' .2*' ,/041&.!/4'/,' /6*(!-' 1!-.!/4'&>(**3'A!.2' .2!3' &3' &;3/' .2*' ,&-.'.2&.'&.' 2!/3',/(' -*4" (!*3'&,.*(A&(13'.2*(*' A&3'&',&6!;5'-&;;*1' *' A2/'-&;;*1'&,.*(' 2!3' 4&6*' (!6*1' 1*3-*4.',(/6' 2!6' &41' /--07!*1' *63*;=*'A!.2'.2*'(*-!.&.!/4'/,'2!3'7/*.(5' 3'./' .2*' .!6*' A2*4' .2*' 7/*.' ;!=*1'&;;' !2*' =!*A3'/,'*&(;5'!4=*3.!>&./(5',/041*1'/4' -2(/4/;/>!-&;' -/43!1*(&.!/43'1!,,*(' A!1*;5' ,(/6' /4*' &4/.2*(' /A*=*(' .2!3' 60-2' 3**63' -*(.&!4' .2&.' .2*' 7*(!/1' !4' A2!-2' *7!-' 7/*.(5'&..&!4*1' .2*' 1*>(**' /,' 7*(,*-F .!/4' ./' A2!-2' /6*(' <(/0>2.' !.' 1/*3' 4/.' ,&;;' *!.2*(' <*,/(*' (' TVN' /(' &,.*(' TNN' ,' .2*'=&(!/03'.(&1!.!/43'(*37*-.!4>' /6*(' ' *' 4**1' /4;5'3.&.*' .2&.' 2!3' ,&.2*(' 3' 4&6*' A&3' *;*3' .2&.' !4' 2!3' /;1' &>*' 2*' A&3' <;!41' &41' .2&.' 2*' 1!*1' /4' .2*' 36&;;' !3;&41' /,';/3' A2*(*'2!3'>(&=*'A&3'32/A4'&41'/4'!.'5*&(;5' !4' .2*' 6/4.2' -&;;*1' &,.*(' 2!6' 6*(/4' &' >/&.' A&3' 3&-(!,!-*1' ./' .2*' 7/*.' A2/' &3' A/(32!77*1'&3'&'2*(/' *(2&73'.2*' 3./(5' /,' 2!3' <;!414*33'&(/3*',(/6',&4-5!4>' .2&.' *6<1 -..3'.2*'<;!41'3K4>*('!4'.2*' 1533*5' A&3'&'7(/./.57*'/,' /6*(' '.(03.A/(.25' -/((/</(&.!/4' /,' .2!3' A&3' 3077/3*1' ./' <*' ,/041' !4' .2*' ,&-.' .2&.' .2*' &0.2/(' /,' .2*' 2564'./' .2*' *;!&4' 7/;;/' A2!-2' .2*'=/!-*' ' &4.!:0!.5' 042*3!.&.!4>;5' 1*3-(!<*1' ./' /6*('(*7(*3*4.*1'2!6'&3'<;!41'&41';!=!4>' /4' .2*' !3;&41'/,' 2!/3' 2*' !67/(.&4-*' /,' /6*(' (*3.3' !4' .2*' ,&-.' .2&.' A2!;*' 03!4>' .2*' ,!0*1',/(63'/,' 7/*.!-' 1!-.!/4' &41' 6*.(*' A2!-2' 2&1' <**4' ,&32!/4*1' <5' 2!3' 7(*1*F -*33/(3' 2*' A&3' &<;*' ./' (&!3*' *7!-' 3/4>' ./

C2*' 1*,!4!.*' ;*=*;' /,' *7!-' 7/*.(5' GA!.2' !.3' 353.*6&.!-' &((&4>*6*4.' &41' !.3' &(.!3.!-' G*;&</(&.!/4

2*' .A/' *7!-3' A2!-2' <*&(' 2!3' 4&6*' .2*' ' ' &41' .2*' : :'</.2'/,' A2!-2'&.' &' ;&.*' 7*(!/1' A*(*' 1!=!1*1' !4./' .A*4.5"℃ /0(' </!D3' 1*&;' A!.2' .2*' ;*>*413' /,' (/5' 2*' ' .(&=*(3*3' &4' !4.*(=&;' /,',!,.5"/4*' 1&53' /0.' /,' .2*' .*4.2' 5*&(' /,' .2*' (/K&4' &(' &--/(1!4>' ./' &' 3!67;*' 7;&4' A!.2' &' -/4' 3*-0.!=*' &--/04.' /,' .2*' *=*4.3' /,' .2*' .!6*' *>!44!4>' A!.2' .2*' A(&.2' /,' -2!;;*3' &.' <*!4>' 1*7(!=*1' /,' 2!3' -&7.!=*' .2*' 6&!1*4' (!3*;3' &.' .2*' -/6 6&41' /,' >&6*64/4' !.' 4&((&.*3' .2*' *=*("!4-(*&3!4>' 1!3.(*33' A2!-2' .2*' !41!>4&4.' 2*(/3' A!.21(&A&;' ,(/6' .2*' <&..;*' <(!4>3' 07/4' .2*' (**D3' !4' .2*!(' ,!>2.3' /4' .2*' (/K&4' 7;&!4' &(/041' .2*' A&;;3' &41' 4*&(' .2*' 4&=&;' -&67' 2!3' >!=*3' &' 30!.&<;*' /77/(.04!.5' ,/(' 1*3-(!<!4>' .2*' G/.2*(' 2*(/*3' 1/A4'./' .2*' ,&;;*/,' &.(--;03' A2!-2' !3' .2*' .0(4!4>"7/!4./,' .2*' 7/*6' 2*4',/;;/A3' .2*'(*-/4-!;!&.!/4',' -2!;;*3' !!3' &=*4>!4>' 2!3' 3;&!4',(!*41' <5' D!;;!4>' *-./('&41' .2*',046(&;'>&6*3'!4'2/4/0(' /,' &.(/-;03' 2*' 7/*6' -/6*3'./' &' .(&>!-&;' -/4-;03!/4' A!.2' .2*' 30((*41*('&41'<0(!&;'/,' .2*'</15',' *-./(' 2*' : :'3!6!;&(;5' G1*&;3' A!.2' &' 60;.!.01*' /,' !4-!1*4.3' -/4F 4*-.*1' A!.2' .2*' (*.0(4' /,' 153 3*03' .' 2!3' 2/6*'&;' /,' A2!-2' .&D*' 7;&-*' !4' .2*' 4&((/A' !4.*(=&;' /,' ,-,(.5' 1&53' <0.' &--/(1!4>' ./' ' 2!>2;5' &(.!3.!-' &41' -/67;*0' 7;&4' 4' -/4.(&3.' ./' .2/' .A/' 6&!4' 7/(.!/43' /,' .2*' ;!&1' .2*' 1533*5' -/43!3.3' /,' ,/0(' 7&(.3' 2*' ,!(3.' 1*3-(!<*3' .2*' &1=*4.0(*3' /,' *;>6 -203' A2/' !3' /77(*33*1' <5' .2*' 30!./(3' /,' 2!3' 6/.2*(' *4>;<7*' &41' 3*.3' /,,' G/4' &K/0(4*5' ./' *3./(' &.' 5;/3' &41' *4*' ;&03' &.' 7&(.&' !4' :0*3.' /,' 2!3' ,&.2*(' 203' .2*' 7/*.' ,!413' /--&3!/4' ./' >! *' &4' &--/04.' /,' .2*' 1!,,*(*4.' ,&.*3' /,' .2*' (**D' 2*(/*3' /4' .2*!(' (*.0(4' 2/6*' 2*' 3*-/41' 7&(.' 1*3-(!<*3' .2*' &1=*4.0(*3' /,' 1533*03' !4' 2!3' =/5&>*' ,(/6' >5>;&' .2*' !3;&41' /,' &;573/' 2!3' 3.&5' &6/4>' .2*' 23*&-!&43' 8-/4F 4*-.*1' A!.2' A2!-2' !3' .2*' 2*(/3' /A4' &--/04.' /,' 2!3' A&41*(!4>3' /4' 2!3' =/5&>*' ,(/6' (/5' 1/A4' ./' 2!3' ;&41!4>' &.' >5>!&9' &(!1';&3.;5' 2!3' &((!=&;' &.' A&-&' 2*' .2!(1' 7&(.' -/4.&!43' 2!3' =!3!.' ./' .2*' 20.' /,' .2*' 3A!4*2*(1' 063*03' 2!3' (*-/>4!.!/4' <5' *;* 6&-203' 8A2/' 2&3' (*.0(4*1' 2/6*9' &41' <5' 2!3',&!.2,0;'3*(=&4.' &41' .2*' 7;&44!4>' /,' =*4>*&4-*' /4' .2*' 30!./(3' 2/',/0(.2' 7&(.' -/4.&!43' .2*' -&((5!4>' /0.' /,' .2*' =*4>*&4-*' &41' .2*' A2/;*' !3' <(/0>2.' ./' &' 7*&-*,0;' -/4F -;03!/4' <5' .2*' (*"04!/4' /,' .2*' 2*(/'=,!.2' 2!3' A!,*' *4*;/7*' &41' 2!3' &>*1',&.2*(' &*(.>3 5' 6*&43' /,' 7(/,*33!/4&;' (*-!.*(3' *+' A*4.' ,(/6' -!.5' ./' -!.5' &41' A*(*' "*&;;*1' ('# 2' .2*' /6*(!-' 7/*63',/041' &'(&7!1'-!(-0;&.!/4'4/.'/4;5'!4'.2*!(' 3!&.!-' 2/6*'<0.' &;3/' !4' (**-*' &41' !.3' A*3.*(4' -/;/4!*3' 2*5' A*(*'!4.(/10-*1'!4./' 7&(.&' <5' 5-0(>03' f ;0. ' ; : ' Cg' A2/';*&(4*1' .2*!(' *0!3.*4-*' !4' 2!3' .(&=*;3' &.' &6/3' ,(/6' .2*' 1*3-*41&4.3' /,' (*/725;03' &' 7/*.' (*70.*1' ./' 2&=*' <**4' &' ,(!*41' &41' (*;&.!/4' /,' /6*(' 4' UV ' ' ('.A*4.5".2(**' 5*&(3' &,.*(' .2*' -/6 6*4-*6*4.' /,' .2*' ;56 7!&13' .2*5' A*(*' !4',&-.' .2*' -/6 6/4' 7(/7*(.5' /,' &;' (**D3

.' .2*' (*-!.&.!/43' >!=*4' <5' .2*' (' &.' 6&45' 7;&-*3' 10(!4>',*3.!=&;3' .2*' >(*&.' <0;D' /,' .2*' 7/*63',(/6' .2*' =*(5' ,!(3.' 4*-*33!.&.*1'&'(*>0;&('1!=!3!/4'/,'.2*' 30<(*-.' !4./' 30!.&<;*' 7/(.!/43' !4' /(1*(' ./' >!=*' !4.*(=&;3' /,' (*3.' 4/.' /4;5' ./' .2*' (*-!.*(3' <0.' &;3/'./' .2*' &01!*4-*' *4-*' &(/3*' .2*' 1!=!3!/4' !4./' 3*7&(&.*';&53'-&;;*1' A!.2' 1!3.!4-.!=*' .!.;*3' A2!-2' A*(*' 3.!;;' !4' 03*' &.' &';&.*('1&.*' A2*4' </.2' 7/*63' A*(*' 1!=!1*1' !4./' .A*495",/0(' </!D3' .' 3//4' <*-&6*' -03./6&(5' ./' (*-!.*' 3!4>;*' (2&7' 3/1!*3' 3/6*' <*!4>' *3!a*-!&;' ,&=/0(!.*3' &41' -/43!1*(*1' 6/(*' 30!.&<;*' .2&4' /.2*(3' ,/(' 32/A!4>' .2*' 37*-!&;' .&;*4.3' /,' !41!=!10&;' (2&73/1!3.3' ./' &1=&4.&>*' 203' !.' 2&7F 7*4*1' .2&.' 3/6*' 7/(.!/43' *&3!;5' ,*;;' !4./' /<;!=!/4' &41' >&73' &(/3*' !4' .2*' /(&;'.(&1!.!/4' /,' .2*' 7/*63' 4' .2*' /.2*(' 2&41' .2*' (2&73/1!3.3' -/0;1' 4/.' &=/!1' >!=!4>' &' -*(F .&!4' ,!4!32' &41' -/67;*.*4*33' ./' .2*!(' ,&=/0(!.*' 7!*-*3' &41' *=*4' 7*(6!..*1' .2*6F 3*;=*3' ./' 6&D*' &;.*(&.!/43' &41' &11!.!/43' A2*(*' .2*5' 3&A' ,!.' /' .2*43' <*;/4>3' .2*' 2/4/0(' /,' 2&=!4>' &((*3.*1' .2*' *=*('* !4-(*&3!4>' -/4,03!/4' -&03*1' <5' .2*3*' 7(&-F .!-*3' /;/4' A&3' .2*' ,!(3.' ./' /(1*(' .2&.' .2*' (2&73/1!3.3' &.' .2*!(' 70<;!-' (*-!.&;3' 32/0;1' D**7' -;/3*;5' ./' .2*' .(&1!.!/4&;' .*0.' /,' .2*' 7/*63' !3!3.(.03'8&</0.' 'V V9' 6&1*' <5' 6*&43' /,' &' -/6 6!..**' /,' 3*=*(&;' 7/*.3' 2*&1*1' <5' 4/6&-(!.03' 8 " 9' &' -/;;*-.!/4' /,' .2*' 3-&..*(*1';&53' &41' &' (*F =!3!/4' /,' .2*' .*0.' /,/041*1' /4' *0.&4.'-/7!*3' &41' /4' .2*' /(&;'.(&1!.!/43' /,' .2*' (2&73/1!3;3' f !- '5' ' !!!' $ U' &41' &03&4!&3' =!!' @?' &(*' .2*' *&(;!*3.' &0.2/(!.!*3' ,/(' .2!3' =&>0*' &41' 1/0<.,0;' 3./(5 9

!.2*(' !3!3.(&.03' /(' 2!3' 3/4' !77&(-203' 6&1*' .2*' (*>0;&.!/4' .2&.' .2*' (2&73/1!3.3' !4' .2*!(' -/67*.!.!/43' &.' .2*' &4&.2*4&!(!' ,*3.!=&;' 32/0;1' (*-!.*' !4' -/43*-0.!=*' /(1*(' &41' -/67;*.*4*33' .2*' /6*(!-' 7/*63' A2!-2' 2&1' <**4' .203' (*3./(*1' ./' .2*!(' 7(/7*(',/(6' /' .2!3' (*=!3!/4' A2!-2' -/0;1

Y4;5 7&(.!&;;5 -/04.*(&-. .2* >(&10&;;5 !4-(*&3!4> -/((07.!/4 /, .2* .*0. A* 6&5 7(/<&<;5 .(&-* .2* -/7!*3 /, .2* /6*(!- 7/*63 A2!-2 A*(* &,.*(A&(13 !4 *0!3.*4-* !4 =&(!/03 7&(.3 /, (**-* 4 -/0(3* /, .!6* .2*3* &;3/ !4 .2*!! .0(4 041*(A*4. 6&45 &(<!.(&(5 &;.*(&.!/43 -2!*,;5 &. .2*

K/5*1 </.2 .2* 6*&43 &41 .2* /77/(.04!.5 !4 .2* -/;;*-.!/4 &4-!*4. 6&403-(!7.3 /, .2* 7/*. !4 .2* !<(&(5 /, ;*0&41(!& 2* <*>!44!4> A&3 6&1* <5 4 J J) /, 72*303 A2/ A&3 30--**1*1 <5 5 ,!3 /, 5Q&4.!04! A2/3* 707!; ( ) # <5 2!3 1!.!/2 /, /6*(

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2&413 /, .2* ;*&(4*1 A2/ 3/0>2. ./ !6F 7(/=* .2* .*0. 2* ,!(3. ./ 1/ .2!3 A*(* .2* ;*0&41(!4* 3-2/;&(3 A2/ ,/041 !4 /6*(& -*4.(&; 7/!4. ,/(.2*!(72!;/F ;/>!-&; 3.01!*3 &41 7(&-.!3*1 & 6*.2/1!-&; -(!.!-!36 /, .2* .*0. ,/(A2!-2 .2*5 *4"

(*&-2*1 .2* 2!>2*3. 7/!4. .2&. .2* &4-!*4.3 *=*(&..&!4*1 !4 72!;/;/>!-&; -(!.!-!36 2* *1!.!/43 /, .2*3* ;*0&41(!4* -(!.!-3 A*(* ,/041*1 /4 .2* (*1&-.!/4 <5 !3!3.(&.03 &41 &(* .2*63*;=*3 .2* /(!>!4 /, /0(7(*F 3*4. .*0. /, .2* /6*(!- 7/*63 G

% (/6 .2&. .!6 ,/(A&(1 1/A4 ./ .2 ;&.*3. .!6*3 /, (**D &4.!:0!.5 /6*(4*=*(-*&3*1 ./ <* &.2*6 ,/(;*&(4*1 1!3:0!3!.!/4 A2!-2 !3 &..*3.*1 ,/(03 <5 406*(/03 (*6&!43 3.!;,!4*0!3.*4-* =*4 !4 &4-!*4. .!6*3 3-2/;&(3 /--07!*1 .2*6 3*;=*3 A!.2 .2 :0*3.!/4 A2*.2*(.2 !&1 &41 .2 1533*5 A*(* -/67/3*1 <5 .2 3&6* 7/*. 2!3 :0*3.!/4 A&3 ,0;;5 03.!F ,!*1 <5 .2 ,&-. .2&. .2 4&6* /, /6*(2&1 ;/4> <**4 (*-/>4!3*1 &3 &-/;;*-.!=* .*(6 &41 2&1 !4-;01*1 &;/4> 3*(!*3 /, *7!-3 ,/(6*1/4 2!3 6/1*;. .2 .(0* &0.2/(F 32!7 /, A2!-2 &3 /4;5 >(&10&;;5 1!3F -/=*(*1 &41 !. 1!1 4/. *3-&7* /<3*(=&.!/4 .2&. .2 1533*5 !4 !.3 6/(* &(.!3.!-1*F 3!>4 &3 A*;* &3 !4 (*;&.!/4 ./ 3/-!&; 6/(&; &41 (*;!>!/03 ;!,* <*;/4>*1 ./ & 6/(* &1=&4-*1 3.&>* /, 1*=*;/76*4. .2&4 .2 ;!&1 203 !4 &4-!*4. .!6*3 .2/3* A2/ &(* D4/A4 &3 $(Q " 8/(H *7&(&F ./(3I9 2*&1*1 <5 .2 >(&66&(!&43]*4/4 &41 *;;&4!-03 7(/<&<;5 <*;/4>!4> ./ .2 <*>!44!4> /, .2 ;*0&41(!4* 7*(!/1 2*;1 .2&. .2 1533*5 A&3 -/67/3*1 <5 &;&.*(7/*. =*4 6/1*6 3-2/;&(3 2&=* 32&(*1 .2!3 =!*A A2!;* /.2*(3 (*;5!4> /4 .2 *33*4.!&;-/((*37/41*4-* /, ./4* ;&4>0&>* &41 6*.(* &..(!<0.* ;*33 !67/(.&4-* ./ .2 7/!4.3 /, 1!=*(>*4-* &41 *07;&!4 .2*6 &3 10* ./ .2 1!,,*(*4-* !4 .2 &!6 /, .2 .A/ 7/*63 &3 A*;; &3 !4 .2 7/*. 3 .!6 /, ;!,* !.2 &;-/0(&16!(&.!/4 /, .2 &(.&41 <*&0.5 /, .2 /6*(!-7/*63 !. !3 4/. ./ <* 1*4!1 .2&. .2*5 1/4/. 3.&41 .2(/0>2F /0. /4 .2 3&6* ;*=*; /, 7*(,*-.!/4 <0. .2&. <5 .2 3!1 /, .2 6/3. 6&>4!,!-*4. 7&33&>*3 .2*(&(/<3*(=&.!/4 /, .2 ;*0&41(!4* 3-2/;&(3 A2/ 6*. /<-*-.!/43 /, .2!3 D!41 <5 &3306!4> ,(*:0*4. !4.*(7/;&.!/43 4/. /4;5 /, 3!4>; ;!4*3 <0. /, A2/;* 7&33&>*3 .2*5 2*;1 .2&. .2 3*-/41 2&;, /, .2 ;&3. </!D /, .2 1533*5 A*(* 370(!/03 4 6/1*6 .!6*3 6&45 *07;&4&.!/43 /, .2*3* 1*,*-.3 2&=* <**4 70. /,(A&(1 4 .2 ,!(3. 7;&-* f$UTV /<3*(=*1 .2&. !4 .2 .!6* /, /6*(.2 &(. /, A(!.F !4> A&3 4/. 5*. 7(&-.!3*1 ./ 30-2 &4 *0.*4. &3 ./ <* *67;/5*1 ,/(;!.*(&(5 70(7/3*3 &41 2*;1 .2&. !. A&3 !67/33!<;* *=*4 ,/(.2 2!>2*3. >*4!03 A!.2 .2 &!1 /, 6*6/(5 &;/4* *!.2*(./7(/10-* 30-2 -/67(*2*43!=* A/(D3 &41 ./ .(&436!. .2*6 ./ /.2*(3 4 .2*3* >(/0413 2* 2*;1 .2&. .2 ;!&1 &41 1533*5 (*-*!=*1 .2*!(*0!3.!4> ,/(6 ,/(.2 ,!(3. .!6*!4 .2* .!6* /, !3!3.(&.03 A2*4 .2*/;1;&53 /4 .2 (/K&4 &('A2!-2 2&1 2!.2*(./ <**4 7(*3*(=*1 <5 /(&; .(&1!F .!/4 &;/4* A*(* ,!0*1 ;5 6*&43 /, A(!.!4> &41 -/;;*-.*1 &41 04!.*1 !4./ .A/ >(*&. A2/;*3 *2&3 <**4,/;;/A*1 <5 /.2*(3 A2/ 2&=* *41*&=/0(*1 ./ 1!33*-. .2* ;!&1 !4 7&(.!-0;&(!4./ !.3 3*7&(&.* &41 /(!>!4&;;5 !41*7*41*4.;&53 .2*(3 2/;1.2&. /6*(3 .A/ 7/*63 -/43!3.*1 /, -/67/3!.!/43 /, 6/1*(&.* ;*4>.2 .2* M (2!-2 <* &67;!,!-&.!/43 !67(/=*6*4.3 &41 &;.*(& .!/43 2&=* (*30;.*1 !4 .2* *0!3.!4> 1533* &41 ;!&1 .2*(3 &>&!4 !43.*&1 /, &3306 !4> &;&(>*(406<*(/, 3!4>; ;&53 &3306 & -/6<!4&.!/4 /, 36&;; *7!-7/*63 & (&41&4 .203(*30;.!4>!4 .2 7(*3*4. 7 &41 & + < (&41 7 " : -.2* 7(*3*4. : : 4 .2* /.2*(2&41 6&45!67/(.&4.&0.2/(! .!*3 6&!4.&!4 .2&. >(&4.!4> .2* 7/33!<!;!. /, &0.!;!Q&.!/4 /, 7(*=!/03;5 *0!3.!4> ;&53 .2* 1533*5 &41 ;!&1 ,(/6 .2* =*(5 <*>!44!4> (*37*-.!=*;5 -/43.!.0.*1 &04!.*1 A2/;** <0. .2&. 3//4 &,.*(.2*!(,!(3. -/6F 7/3!.!/4 .2*5 041*(A*4. 6&4!,/;1 (*=!3!/4 &41 &67;!,!-&.!/4 04.!;.2*5(*-*!=*1 <*,/(* .2* <*>!44!4> /, .2* ;567!&13 .2* *33*4F .!&; ,/(6 A2!-2 .2*5 3.!;; (*.&!4 *(.&!4 !. !3 .2&. &,.*(.2* ,!(3. ;567!&1 ;/4>*(*7!-7/*63 A*(* -/67/3*1 /4 .2* 6/1*; /, .2* ;!&1 &41 1533*5 &41 !4 -/4.!40&F .!/4 /, .2*6 &41 !.-&4/.<* 1*7! 1 .2&. ;/4> <*,/(* .2!3 7*(!/1 .2* &(. /, A(!.!4> 2&1 <**4 *0.*43!=*;5 *67;/5*1"!4 (**-* .!3 &;3/ <*5/41 -/4.(&1!-.!/4 .2&. &7&(. ,(/6 -/((07.!/43 A2!-2 &(3* ,(/6 ;&.*(&;.*(&.!/43 1!33!6!;&(!.!*3 !4 .2* .(*&.6*4. /, .2* 3*=*(&; 7&(.3 &3 A*;; &3 6&45 !4F -/43!3.*4-!*3 6&5 2&=* *0!3.*1 !4 .2*7/*63 *=*4 !4 .2*!(7(!6!.!=* ,/(6 4 37!.* /, 30-2 <;*6!32*3 /, 1*.&!; .2* /6*(!-7/*63 (*6&!4 0430(7&33*1 &3 A/(D3 /, &(. A2!-2 2&=* 2&1 &4 !4-&;-0;&<;* !4,;0*4-* 4/. /4;5 07/4 .2* 1*=*;/76*4. /, ;!.*(&.0(* &41 &(. <0. &;3/ 07/4 .2* A2/;* ;!,* /, .2* (**D3 A2/ ,(/6 .2* *&(;!*3. .!6*3 (*>&(1*1 .2*6 &3 .2* -/66/4 7(/7*(.5 /, .2* 4&.!/4 &41 *67;/5*1 .2*6 &3 .2* ,/04F 1&.!/4 /, &;; .*&-2!4> &41 -0;.0(* =*4 4/A &,.*(4*&(;5 NNN 5*&(3 .2*!(!4F ,;0*4-* (*6&!43 04!67&!(*1 *3!1*3 .2* 7 &41 : :A* 3.!;; 7/33*33 041*(.2* 4&6* /, /6*(Ⅷ 8&9 -/;;*-.!/4 /, : " ,!=* /, >(*&.*(;*4>.2 /4 .2* 5.2!&4 &41 *;!&4 7/;;/ *(6*3 72(1 .* &41 6*.*(&41 .A*4.5"4!4*

32/(.*(' 7/*63' /4' =&(!/03' >/13' 2*3*' &(*' (*&;;5' '/(' !4.(/10-.!/43' A!.2' A2!-2' .2*' (2&73/1!3.3' 7(*,&-*1' .2*!(' (*-!' .&.!/43' 2*!(' /<K*-.' !3' ./' 7(&!3*' .2*' >/1' &.' A2/3*' ,*3.!=&;' .2*' (*-!.&.!/4' ./!D' 7;&-*' /(' A2/' A&3' 37*-!&;;5' 2/4/0(*1' !0' .2*' ./A4' A2*(*' .2*' (2&73/1!3.' 7(*3*4.*1' 2!63*;,' *(2&73' *=*4' .2*' -2/!-*' /,' .2*' !4.(/10-F .!/4' 6&5' 2&=*' <**4' !4,;0*4-*1' <5' .2*' -/4F .*4.3' /,' .2*' 30<3*:0*4.' 7/*6' ,' .2*3*' 7/*63' 1!1' 4/.' /(!>!4&.*' A!A!' /6*(' &.' &45' (&.*' .2*5' &(*' .2*' -/67/3!.!/43' /,' (2&73/F 1!3.3' /,' .2*' /6*(!-' 3-2//;' -&;*1' 2 ' B 203' .2*' (2&73/1!3.' 54&*.203' /,' 2!/3' 8&</0.' -' ?NC9' !3' 4&6*1' &3' .2*' &0.2/(' /,' .2*' 2564' ./' .2*' *;!&4' 7/;;/' 2*' -/;;*-.!/4' &77*&(3' ./' 2&=*' <**4' 7(*F 7&(*1' ,/(' .2*' 03*' /,' .2*' (2&73/1!3.3' !4' ..!-&' A!.2' &' =!*A' ./' 3*;*-.!/43' <*!4>' 6&1*' ,(/6'!.'&.'7;*&30(*' 8"9' !O.**4' 36&;;' 7/*63'-&;;*1' 9 1 ' (*6&!43' /,' &4' /;1*(' 7/*.(5' .A/' /,' A2!-2' &(*' ;&53' !4' &' 7/70;&(' 3.5;*' .2*' " ' /(' H' 7/..*(3' /=*4' I' 8!4' A2!-2' .2*' <;*33!4>' /,' .2*4*' !3' !4=/D*1' /4' &' <&.-2' /,' *&(.2*4A&(*' A2*4' 7;&-*1' !4' .2*' ,0(4&-*9' !1' &' D!41' /,' <*>>!4>' 3/4>' -&;;*1' .2*' 9 " ' 8;!.' &' 2&(=*3."A(*&.2' A/041' (/041' A!.2' A//;9' 8-9' 2*' (' .2*' &..;*' /,' .2*' (/>3' &41' !-*' &' 7&(/15' /,' .2*' ;!&1' !3' >*4*(&;;5' &..(!<0.*1' ./' !>("3' .2*' <(/.2*(' /,' .2*' ,*!(!&4' :0**4' (. 6,3 &' 3/' A*;' D4/A4' !4' -/44*O!/4' A!.2' .2*' *(3!&4' &(3' 2*' &4-!*4.' 3&.!(!-&;' *7!-' 7/*6' -&;;*1' (' 1 ' 8H' .2*' 1/;.' I9' 2&3' <**4' ;/3.' .3' >(*&.' &4.!:0!.5' 6&5' <*' !4,*((*1' ,(/6' !.3' 2&=!4>' <**4' &33!>4*1' ./' /6*(' &3' *&(;5' &3' .2*' .!6*/,' (-2.; -203' ?U?' -9' f 4' /6*(' ' (/,' *<< 3' '" " [8@9' 7/*.' /,' ! (&7<;!3' !4' 2(!&' 3/4' /,' .2*' 7/*.*33' /*(/' <76' !4' .2*' ,!(3.' 2&;' 69' .2*' (1' -*4.0(5' (*' A&3' /4*' /,' .2*' 3*=*4' .(&>!-' 7/*.3' /,' .2*' ;*0&41(!4*' , ' &1 162!/!' 8_H **(3I9' ' 4&6*' >!=*4' ./' .2*' 7&(.;&.&*' & ' !4' &;;03!/4' ./' .2*!(' 2&=!4>' *:0&;' 7/;!.!-&;' (!>2.3' A!.2' /4*' &4/.2*(' 141' &41' !(.03' 2*' &.!4' 7*(3/4!F ,!-&.!/43' /,' 2<4/0(' &41' &(;!D*' -/0(&>*' f !/' = ' !!' C' $@$9' &(-03' &(-*;;03' .2*' ,&6/03' -/4:0*(/(' /,' 5(&-03*' , ' ! !9' &11*1' ./' &4' &;(*&15' *0!3.!4>' 32(!4*' 1*1!-&.*1' ./' " ' &4/.2*(' ./' = ' &41' 04!.*1' .2*6' </.2' !4' /4*' <0!;1!4>' A2!-2' 2*' &1/(4*1' A!.2' .2*' 6&3.*(7!*-*3' /,' (**D' &(.' A2!-2' 2*' 2&1' -&((!*1',,',(/6' 5(&-03*' &(!03' <0!;.' &' 3*-/41' .*67;*' ,(/6' .2*' </!/.5' >&!4*1' !4' .2*' !6<(!&4' &(' ,) ' '

N9' 7/4' -/!43' .2*5' &(*' </.2' (*7(*3*4.*1' &3' 5/0.2,0;' ,!>0(*3' A!.2' .(*33*3*' " ' A!.2' &' -2&7;*.' /,' <.B1*&=*3' &41' -/(40F -/7!&' &41' = ' A!.2' &' (!-2;5' 64&6*4.*1' 2*;6*.

/7;!.*3' 2*' 2*&=!;5' &(6*1',//."3/;1!*(3' /,' .2*' (**D3' A2/' ,/0>2.' !4' 3*((!*1' 6&33*3' 83**' # ' 2*!(' A*&7/43

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-/04.*1'/,' &4' /=&;' 32!*;1' 3037*41*1' ,(/6' .2*' 32/0;1*("<*;.' &41' A!*;1*1' <5' 6*&43' /,' &' 2&41;*' &' -/&.' /,' 6&!;' ,!++' 7 ' &' 2*;6*.'&41'>(*&=*3' /,'<(/4Q*'&41'3/6*.!6*3' &' ;&4-*' &</0.' 3!0' ,**.' ;/4>' &41' &' 32/(.' 3A/(1' 2*' 7&(.&43' A2/' ,/0>2.' A!.2]

&4 &..!.01* /, !41*7*41*4-* ./A&(13 .2* *67*(/(&41 *0-03*1 2!63*;, (/6 &--*7.F !4> .2* .*67.!4> /,,*(/ 0>03.03 ./ *4.*(2!3 3*(=!-* &3 7(!=&.* 3*-(*.&(5&41 ./ ,/(6 %/4* /, 2!3 30!.* 0. 2* 1!1 4/. *4.!(*;5 G1*-;!4* ./ -&((5 /0. 2!3 A!32*3 . &3 <5 2!3 1*3!(* .2&. 8&</0. $U 2* -/67/3*1 !/(.2* ,*3.!=&; /, .2* *-0;&(&6*3 .2* 2044 ./ 7/;;/ &41 !&4& D4/A4 &3 .2* $ "* &;3/ -*;*<(&.*1 .2* =!-./(!*3 /, .2* *67*(/(3 3.*7"3/43 !<*(!03 &41 (0303 !4 3*=*(&; 1*3 . $V9 A2!-2 2* 70<;!32*1 A!.2 3/6* /.2*(3 &3 < (8&</0. $ /9 3 0>03.03 2&1 -/67;&!4*1 .2&. /(&-* 2&1 &4&1* 4/ 6*4.!/4 /, 2!6 !4 2!3 *&(;!*(7!3.;*3 .2* 7/*. &11(*33*1 ./ 2!6 &-/6F 7/3!.!/4 A2!-2 3.&413 ,!(3. !4 .2* " '9 7(/<&<;5 70<;!32*1 32/(.;5 <*,/(* 2!3 1*&.2 2* ,&6/03 9 < , " -/66/4;5 -&;;*1 1!* 9 !3 /,.*4 (*-D/4*1 &3 .2* .2!(1 *7!3.;* /, .2* 3*-/41 </!D f<0. 7(/<&<;5 <*;/4>3 ./ &4 *&(;!*(1&.*9 2* 7/*. 1!*1 @U.2 /=* 6<*(&41 A&3 <0(!*1 /4 .2* 3&0!;!4* 4*&(./ 2!3 (*-*4.;5 1*-*&3*1 ,(!*41 &*-*4&3 /(&-* &3 2* A&3 2!63*;, 2A&(* !3 4/. &7/*. A2/ 3/&(3 ./ ;/,.5 2*!>2.3 /4 .2* -/4.(&(5 2!3 4&.0(* !3 *33*4.!&;;5 (*,;*-F .!=* &41 A!.2 2!6 .&3.* &41 ,&4-5 &(* &;A&53 041*(.2* -/4.(/;/,(*&3/4 4 2!3 ;5(!-&;7/*63 2* <*>&4 A!.2 6/(* /(;*33 ,(** !6!.&!/43 /, (**D 6/1*;3 &41 >(&F 10&;,5 &1=&4-*1 ./!41*7*41*4.-/67/3!.!/43 !4 .2* (**D ,/(6 2*!(*(!.3 1/ 4/. &(. A!.2 A2!-2 </.2 1!-.!/4 &41 6*.(* &(* 2&41;*1 4 .2* 7/*63 /, & 2!>2*(3.5;* A2!-2 2* -/67/3*1 <5 1*3!(* /, 0>03.03 /(041*(.2* !4,;0*4-* /, .2* .!6*3 !4 A2!-2 2* ;!=*1 .2* *07(*33!/4 (!3*3 ./ &-.0&; ;/,.!4*33 <0. .2* 37!(!. /, 1*;!<*(&.* 70(7/3* !3 >*4*(&;;5 7(/6!4*4. * 30--**13 <*3. !4 .2/3* /, 2!3 1*3 !4 A2!-. ,/;;/A!4>2!3 /A4 <*4. A!.2/0. &45 *0.*(4&; 7(/67.!4> 2* .(*&.3/, 3/6* <(!>2. &41 3!67;* .2*6* 30-2 &3 ;/=* /(,(!*41F 32!7 !3 7*(3/4&;!.5 (*,;*-.3 !.3*;, 6/3. =!=!1;5 !4 2!3 &.!(*3 &41 !4 2!3 7!3.;*3 A2!-2 /,.*4 2&=* &3!61;&(&!6 /;;/AF !4> .2* 6*.2/1 /, 0-!!!03 2* 2*(* >!=*3 2!3 7*(3/4&; !67(*33!/43 /, 3/-!&; &41 ;!.*(&(5 6&..*(3 !4 &, /(6 .2&. !3 6/(* 4&.0(&; &41 &. .2* 3&6* .!6* 6/(* &(.!3.!- .2&4 2!3 7(*1*-*33/(3 &41 !4 &3.5;* .2&. &77(/&-2*3 .2* ;&4>0&>* /, *=*(51&5 ;!,* .,!(3. 2!3 &.!(*3 ;!D* 2!3 7/1*3 *(* 4/. A!.2/0. &704>*4-5 -/((*37/41!4> ./ &<!..*(4*33/, ,**;!4>10* ./.2* -!(-063.&4-*3 /, 2!3 ;!, * <0. &3 2!3 .*67*(<*-&6* -&;6*(.2*5 &3306* &6/(* >*4!&; &41 ;*33 7*(3/4&; -/67;*0!/4 4 .2* 7!3.;*3 .2* 7/*. 32/A3 2!63*;, .2* *07/4*4./, &6!;1 !, 4/. =*(5 1**7 72!;/3/725 /, ;!,* (/6 &4 *&(;5 1&.* /(&-* 3 7/*63 A*(* 03*1 !4 /6&4 3-2//;3 &3 &.*0."</!D *41 *(* *07/041*1 <5 /6&4 3-2/;&(3 *37*-!&;;5 <5 -(/4 &41 /(72B(! # "9 /(3* 2* >/11*33*3 /, /(1*(!4 4&.0(* A2/ -&03* .2* 3*&3/43 ./ -2&4>* !4 .2*!((*>0;&(-/0(3* &41 &;; .2!4>3 ./ -/6* !4./

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"-/43!3. !4 A&(6.2 /, ,**;!4> /(1*7.2 /, .2/0>2. <0. !4 .2* 7*(37!-0!.5/, .2*!(7;&4 ".2* *=*44*33 /, .2*!(*0*-0.!/4 &41 .2* <*!4> <;/33/6 &41 (!7*4 &. .2* &77/!4.*1 .!6* 4 /6*(2/ >!=*3 .2*6 4*!.2*(>*4*&;/>5 4/(4&6*3 .2*5 &(* 6*4.!/4*1

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2*' /6&4'2/03*' A&3'/(!>!4&;;5'-&;-0;&.*1' /4;5' ,/(' /4*' 3./(5' <0.' !4' -/0(3*' /,' .!6*' &' 3*-/41' 3./(5' <*-&6*' 030&;' 3' .2*' 1!4!4>"(//6' A&3' >*4*(&;;5' !4' .2!3' 7&(.' /,' .2*' 2/03*' &;;' .2*' (//63' !4' .2*' 077*('3./(5' A*(*' -&;;*1' " ' 2*' 077*(' 3./(5' A&3' &77(/&-2*1' <5' 3.*73' !4' .2*' ,/(6' /,' &' ;&11*(' &41' A&3' ;!>2.*1' <5' /7*4!4>'3' A2!-2' -/0;1' <*' -;/3*1' <5' 320..*(3' /6*' /,' .2*3*' A!41/A3' A*(*' 7!*(-*1'!4' .2*' /0.*(' A&;;' &41' 3/6*' !4' .2*' !44*(' A&;;' -&((!*1' (/041' .2*' (//,3',' .2*' ' &41' : ' 2*(*' A*(*' .2("**"3./(!*1' 2/03*3' !4' /6*' &3' *&(;5' &3' .2*' *41' /,' .2*' *70<;!-' 2*' 077*(' 3./(!*3' A*(*' ;*.' ./' .*4&4.3' &41' &3' *&(;5' &3' .2*' .!6*' /,' 0>03.03'!.' A&3',/041'4*-*3F 3&(5' ./' ;!6!.' .2*' 2*!>2.' /,' .2*' 3.(**.',(/4.&>*' ./' UN' /F 6&4',**.' &' 6&O!606' A2!-2' A&3' &,.*(A&(13' ;/A*(*1' ./' ?N',**.' 2*' (//,' A&3' /,' .!;*3' 8C9' ' R N ' ' ' ' ' ' &41' 3/6*.!6*3' 7/!4.*1' &41' 3;/7!4>' /4' .2*' ,/0(' 3!1*3' 3/6*.!6*3' ,!&.' !4' A2!-2' -&3*' !.' A&3' /,.*4' /(4&6*4.*1' A!.2' ,!/A*(!4>' 7;&4.3' &41' 32(0<3' ';,&.' (//,'/,' .2!3' 3/(.' A&3' -&;;*1' ' 2*' &4-!*4.3' 2*&.*1' .2*!(' 2/03*3' <5' 6*&43' /,' 7/(.&<;*' ,!(*7;&-*3' <(&Q!*(3' &41' 3/6*.!6*3' 3.!=*3' 2*' /6&43' !4' .2*' 4/(.2' /,' .&;5' &0' &41' *(6&45'03*1' 2/.' &!(' ,/(' .2*' 70(7/3*' 8 -*' ? ' &(>*' ;/1>!4>"2/03*3' A*(*' ,/041' </.2' !4' (**D' &41' /6&4'-!.!*3' .2*' (**D'4&6*' ,/(' 30-2' &' 2/03*' <*!4>' &41' .2*' &.!4'4&6*' "

/03*2/;1' /13' ' ' &41' - '

"1-!4.203' /4' /,' D!4>' 65-;&3' /,' 65-;)' !4' &-/4!&' &41' /,' !/6*1*' *' A&3' <*;/=*1',/(' 2!3' <*&0.5' <5' 7/ /' &41' L>725(03' 3' 7/;;/' A&3' /4*' 1&5'.*&-2F !4>' .2*' </5' 2/A'./' 7;&5'&.' :0/ 3' /4' .2*' <&4D3' /,' .2*' (!=*(' 0(/.&3' .2*' A!41">/1' !4' 2!3' K*&;/035' 1(/=* .2*' :0/!.' A!.2' 30-2' =!/;*4-*' &>&!43.' .2*' 2*&1' /,' 5&-!4.203' .2&.' .2*' <;/A' D!;;*1' 2!6' (/6' 2!3' <;//1' 7/;;/' -&03*1' &',;/A*(' /,' .2*' 3&6*' 4&6*' ./' 37(!4>' 07' A!.2' .2*' *0-;&6&.!/4' /,' A/*' ' 6&(D*1'07/4'!.3'7*.&;3' 5&-!4.203' ;!D*' 1B!3' !3' &' 7*(3/4!,!-&.!/4' /,' =*>*.&F .!/4' A2!-2',;/0(!32*3'!4' .2*' Ka(!4>".!6*'<0.' !3' 3-/(-2*1' &41' D!;;*1' <5.2*' >;/A!4>' 2*&.

/,' .2*' 306 6*(' 304' A2!-2' !3' 356</;!Q*1' <5' .2*' :0/!.' /(' ' !D*' /.2*(',*3.!=&;3' !4' 2/4/0(' /,' 4&.0(*' .2*' ,*3.!=&;' /,' .2*' 5&-!4.2!&' -*;*<(&.*1' <5' .2*' 7&(.&43' &.' 65-;&*',/(' .2(*' 1&53' !4' 0;5' 1/A4'./' .2*' .!6*' /,' .2*' /6&4*67*(/(3' A&3' -/44*-.*1' A!.2' .2*' *07(*33!/4' /,' >(!*,'&.' .2*' 1*&.2' /,' =*>*.&.!/4' /,' K/5' /' *4' .2*' 2&(=*3.' &41' /,' -2**(,0;'.(03.'!4'.2*'(*"&A&D*4!4>'/,' 4&.0(*' 4' .2*' ,!(3.' 1&5' A2!-2' A&3' 1*1!-&.*1' ./' 3!;*4.' 6/0(4!4>' 3&-(!,!-*' ./' .2*' 1*&1' A&3' /,,*(*1' &.' .2*' >(&=*' /,' 5&-!4.203' A2!-2' A&3' 041*(' .2*' 3.&.0*' /,' 7/;;/' !4' .2*' .*67;*' &.' 65-;3*' 2*' /;;/A!4>'1&5' A&3' 37*4.'!4'70<;!-'(*K/!-!4>'!4'2/4/0(' /,' 7/;;/' !4' A2!-2' &;;' .2*' KB70;&-*' !4-;01!4>' .2*' 3;&=*3' .//D' 7&(.' 2*5' A*4.'!4',*3.&;' (/" -*33!/4' A!.2' -2/(03*3' /,' 3!4>!4>' </53' &41' >!(;3'&--/67&4!*1'<5'2&(73'&41',;0.*3'./' .2*' .*67;*' /,' 7/;;/' A2*(*' >&6*3' &41' -/67*F .!.!/43' 3&-(!,!-*3' &41' *4.*(.&!46*4.3' ./' -6*

&4/.2*(' .//D' 7;&-*' &41' &' (/<*' A/=*4' <K' .2*' 7&(.&4' A/6*4' A&3' /,,*(*1' ./' .2*' >/1

B!.1 3' 8H .2*' (&!4!4>' /7*3I9' &0>2F .*(3'/,' .;&3' &41' /,' M).2(&'&41' 3!3.*(3' /,' .2*' ;*!&1*3M .2*!(' 406<*(' =&(!*3'<*.A**4' .A/' &41' 3*=*4' *!4>' 56723' A2/' 307F 7;!*1' 4/0(!326*4.' <5' 6*&43' /,' 6/!3.0(*' .2*5' A*(*' A/(32!77*1' &.' /1/4&' &3' 40(3*3' /,' L*03' /(' /,' .2*' !4,&4.' !/4B03' 3' &' (*A&(1',/(' .2!3' .2*5' A*(*' 7;&-*1'!4' .2*' 3D5' &3' 3.&(3' .' .2*!(' (!3!4>'&<A.' .2*'3&6*' .!6*' &3' .2*' 304' <*.A**4' &5' U' &41' @$' (&!45' A*&.2*(' 030&;;5' <*>&4' : ' !3' 4&.0F (&;;5' 1*(!=*1',(/6' .2*' =*(<H' ./' (&!4' I' <0.' .2*' /6&43' A(/4>;5' 3077/3!4>' !.' -&6*' ,(/6' .2*' (**D',/(' H' &' 7!> I' -&;;*1' .2*' -/4F 3.*;;&.!/4' H' .2*' ;!..;*' 7!B' I' &

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f 5J &721(;&' #6 ' H 2*' -&((5!4>' /,'&' A&.*(7/.I' &' 3*(=!-*' 7*(,/(6*1' <5' .2*' A!=*3' /,'(*3!1*4.'&;!*'43'&.' .2*' , " (" %

5>;*!&' 4' (**D' 65.2/;/>5' .2*' >/18,/33' /,' *&;.2' 1&0>2.*(' /,' 3-0;&7!0&' 8 (' ' A!.2' A2/6' 32*' !3' ,.*4' A/(32!77*1' 4' A/(D3' /,' &(.' 32*' !3' (*7(*F 3*4.*1' <5' 2!3' 3!1*' &3' &' 6&!1*4' /,' D!41;5' &37*-.' A!.2' &' 3*(7*4.' ./' A2/6' 32*' !&

>!=!4>' 1(!4D' ,(/6' &' 3&0-*(' 83**' -0.9' 5' .2*' /6&43'32*' A&3'!1*4.!,!*1' A!.2

,(/6'1 ' &' 30(=B/(3' 6*&30(!4>'(/19'
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3*=*(&;' </!D3' /4' .2*' 30(=*5!4>'/,';&41' .'
!3' 1/0<.,0;' A2*.2*(' .2*' A/(D' /4' /6&4'
-&3.(&6*.&.!/4' *4.!.,*1' 5' " " '
$ ' 32/0;1' <*' (*&;;5'&..(!<0.*1'./'
2!6' 2*'>!44!4>'&41'.2*' *41'&(*'&;!D*'
;/3.' .'!3' .2*' -2!*,' 3/0(-*' /,' /0(' D4/AF
;*1>*' /,'.2*'30<K*-.' .'A&3'7(/<&<;5'-/6F
7/3*1'*&(;5'!4'.2*' (1'-*4.0(5'
5;&3' /4' /,' 2*! 1&6&3' D!4>'/,'.2*'
(K 7 3'&41'/,'.2*' 5672' *4 1-*' *'
A&3' &' ,&=/0(!.*' /,' *(-;*3' A2/6' 2*'
&--/67&4!*1'/4'.2*' (>/4&0.!-'*07*1!.!/4'
2*4' *(&-;*3'1!3*6<&(D*1'07/4'.2*'-/&3.'
/,' 53!&'./'/0.' 2!63*;,'&',(*32' /&(' 5;&3'
,/;,/A*1'2!6'./'1(&A'A&.*('(,/6'&',/04.&!4'
.2*' 5672 3' /,' A2!-2' 1(*A' .2*' <*&0.!,0;'
5/0.2'1/A4'!4./.2*' A&.*(' 2*' (>/4&0.3'
2&=!4>' >/4*' /4' .2*!(' A&5' *(&-;*3'A!.2'
2!3' 3!3.*(3' 3/4' <;B72*603' (*6&!4*1'
<*2!41'./'3*&(-2',/('2!6' 4',&!;!4>'./'
,!41'2!6'2*'1!1'4/.';*&=*'04.!;'2*'2&1'.&D*4'
2/3.&>*3',(/6'.2*' 53!&43'&41'6&1*'.2*6'
7(/6!3*' .2&.'.2*5' A/0;1' 7(/10-*' .2*'</5'
!.2('1*&1'/('&;!=*' ,.*(' .2&.'.2*'!42&<!F
.&4.3'/,' ;"3'8,/041*1'<5' /;572*603'&41'
&,.*(A&(13' -&;;*1' (03!&39' -/4.!40&;;5'
3/0>2.' ,/(' 5;&3' &41' 3&-(!,!-*1' ./' 2!6'
=(55*&('&.'.2*',/04.&!4'&41'.2(!-*'-&;;*1'
2!6'<5'4&6*
5 43' 2*'3/4'/,' *(-;*3'&41' *!2"
4;(&'203<&41'/,' ";*' 2*4'2*' &41' .2*'
(*3.'/,'.2*'-2!;1(*4'/,' *(&-;*3'&.' .2*!('
,&.2*(3'1*&.2'A*(*'70(30*1'*=*(5A2*(*'<5'
.2*'*46!.5'/,' 0(53.2*43'.2*5'&.';&3.',/041'
30--/0(',(/6' 2*3*03'/('2!3'3/4' *6<72/4'
2*4' 0(53.2*43' 1(*A' 4*&(' A!.2' 2!3'
&(65'./-/67*;'.2*' .2*4!&43'./'>!=*'.2*6'
07' &-&(;&' 1&0>2.*(' /,' *(&-;*3',(**;5'
/,,*(*1'2*(3*;,' 07' &3' &' 3&-(!,!-*' ,/(' 2*('
<(*.2(*4' A2/' &!1*1' <5' .2*' .2*4!&43'
1*,*&.*1' .2*' *4*65' 0(53.2*43' <*!4>'
3;&!4' &3' &',0>!.!=*' <5' 5;;03' 2!63*;,'
&=!4>'A!.21(&A4',(/6' ..!-&'./' 2*33&;5'
5;;03'A&3'&1/7.*1'<5'.2*' /(!&4'7(!4-*'
8 >;6,03'A2/6' *(&-;*3'2&1' /4-*'&33!3.*1'
!4'.2*'A&(' <*.A**4'.2*' &7;.23*"&41'.2*'
(5<7 3' 041*(' 7(/6!3*' /,' 2!3' &<1!-&.!/4'
/,' .2*' (/5&;' 7/A*(' ./>*.2*('A!.2' &' .2!(1'
7&(.' /,' .2*' D!4>1/6' 203' .2*' (0;*' /=*('
.2*' /(!&43' 7&33*1'./' 2!6'&41' 2!3' 1*3-*4F
1&4.3' 2*4' -/66&41*1'<5'.2*' *;72!-'
/(&-;*' ./' &..*67.';7' -/4:0*(' .2*' D!4>F
1/6',' 0(53.2*43'!66*1!&.*;5' &,.*(H'.2*'
.2!(1',(0!.I'2*'*41*&=/0(*1'&,.*('.2*';&73*'
/,'.2(**5*&(3'./'!4=&1*'.2*' *;/7/44*303'
<5'A&5'/,'.2*' 3.2603' *' A&3'2/A*=*('
(*70;3*1'<5' .(*03'.2*'30--*33/('/,' 0(53"

5>!403' 8$9' 6 " ' ' ' /6&4'
3-2/;&(' &' 4&.!=*' /,' 7&!4'&41' &' ,(**1"'
6&4' /,' 0>03.03' A2/' &77/!4.*1' 2!6'
;!<(&(!&4'/,'.2*' &;&.!4*' !<(&(5' !3'=*(F
3&.!;!.5'&3'&4'&0.2/('(*6!413'03'/,' &((/'
,/('A/(D3'/,' 2!3'&(*' 6*4.!/4*1'<*&(!4>'/4'
2!3./(!-&;' &4.!:0&(!&4' >*/>(&72!-&;' .2*/F
;/>!-&;' &41' &>(!-0;.0(&;' 30<K*-.3' 41*('
.2*'4&6*'/,' 5>!&03'A*'7/33*33'.A/3-2//;F
</!D3'/,'65.2/;/>5"'</.2'&(*'.2*'7(/10-.!/4'
/,'.2*'3&6*' &0.2/(' <0.' !.' !3' 3/6*A2&.'
1/0<.,0;' A2*.2*('.2*5'&(*' (*&;;5'A(!..*4'
<5'.2*' /6&4' 3-2/;&(' /(' &(*' /4;5'*OF
.(&-.3',(/6'.2*' >*40!4*' A/(D3'/(',(*32'
=*(3!/43'/,'.2*6' 2*5'&(*'8&9'.2*' A 2
' ;' &' -/;:*-.!/4' /,' @UU';*>*413'
A2!-2'&(*'4/.'A!.2/0.'=&;0*',/('.2*'65.2/F
;/>5'&41'2!3./(5'/,' ' -/43!3.4>'/,'.2*'
*;*6*4.3'/,' &3.(/4/65'A!.2'&4'&--/04.'/,'
.2*' -/43.*;;&.!/43'&41'.2*' 65.23'(*;&.!4>'
./'.2*6'6&!4;5'&,.*(' (&./3.2*4*3
8@9''+' 6 ' 8.2*' ;&41"30(=*5/(

.2*03 &41 ,*;;! !4 3!4>;* -/6<&. A!.2 E-2*6 23 D!4>/ , *> & . A&3 !4 .2* H .2!(1>*4*(&.!/4 I &,.*(2!6 .2&. .2* 3/43 / ,2!3>(&413/4 (!3./6&-243 Q *6"443 (*372/4.*3 &41 (!3./1 643 &. ;&3.-/4F :0*(*1 .2* *;/7/44*303 A2!-2 A&3 .2*4 441*(.2* (0;* /, !3&6*403 3/4 /, (B. 3

56*4 8 (! " # &. ! " 2* (**D >/1 /, 6&((!&>* &41 /, .2* 6&(F (!&>*"3/4> 84&6*1 &,.*(2!69 * !3 3/6*F .!6*3 1*3-(!<*1 &3 .2* 3/4 /, 7/;;/ &41 & 43* 8*!.2*(*(73 -2 (* (&4!& /(&;" $$?7`9 A2<2&1=&4!32*1 /4 2!3 /A4 A*11!4>" 1&5 &41 A&3 -/43*:0*4.;5 &;A&53 3/0>2. ,/(&. *=*(5 A*11!4> * !3 &;3/ 1*3-(!<*1 &3 & 3/4 /, .2* 2*33&;!&4 &>4*3 &41 /, .2* &3* ;!/ &41 &3 <*;/=*1 e 7/;;/ &41 2&65(!3 /(&3 .2* 3/4 /, !/45303 &41 72(1 .* A2/ ;/3. 213 =/!-* &41 ;!,* A2!;* 3!4B> .2* 407.!&; 3/4> &. .2* 6&((!&>* /, !/45303 &41 (!&14* --/(1!4> ./ ..!- .(&1!.!/4 2* A&3 &4 (>!=* 5/0.2 A2/ !4 .2* 1!3>0!3* /, & >!(; ,/;;/A*1 ./ .2* ,*&3./, *6*.*(&. ;*03!3 & 5/04> .2*4!&4 6&!1*4 A2/6 2* ;/=*1 A!.2F /0. A!44!4> .2* -/43*4. /, 2*(7&(*4.3 56*4&*03 &41 3/6* /, .2* 6&!1*43 2/ A*(* -*;*<(&.!4> .2* ,*3.!=&; A*(* -&((!*1 /,, <5 7!(&.*3 A2/6 2* &,.*(A&(13 D!;*1 !4 .2*!(3;**7 &41 2*4-*,/(.2 <*-&6* .2* -2&67!/4 /, &;, A/6*4 &41 1&63*;3 4 &(. 2* !3 (*7(*3*4.*1 ;!D* (13 &3 & <*&0F .!,0; A!4>*1 5/0.2 /4;5 A!.2 & 6/(* 3*(!/03 *07(*33!/4 &41 -&((5!4> !4 2!3 2&41 .2* 6&((!&>* ./(-2 &41 407.!&; =*!; 2* 6&((!&>*"3/4>-&;;*1 : " A2!-2 !3 6*4.!/4*1 &3 *&(;5 &3 /6*(&3 304> <5 5/04> 6*4 &41 6&!1*43 ./ .2* 3/041 /, ,;0.*3 10(!4> .2* ,*3.&; 7(/-*33!/4 /, .2* <(!1* ,(/6 .2* 2/03* /, 2*(7&(*4.3 ./ .2&. / .2* <(!1*>(//6 4 -2&(&-.*(!. A&3 7&(.;5 3*(!/03 &41 7&(.;5 206/(/03 2* 3*=*(&; 7&(.3 &;A&53 *41*1 A!.2 &4 !4=/-&F .!/4 /, 56*4&*03 & A &)0 4 .2* /6&4 >/1 /, A*11!4>3

56403 >*4*(&;5 6*&4. &6/4> .2* (**D3 &4 !4=/-&.!/4 /, .2* >/13 *37*-!&;;5 !4 .2* /(6 /, &4 /1*304>5 &-2/!(./ .2* &--/67&4!6*4. /, .2* (A2!;* .2*5 3./1 (/041 .2* &;.&(

57&*.2(&; *67;* .*67;*4/.-/=*(*1 <5 &(//, # (" &

7&37! .33" 2* 32!*;1"<*&(*(3 !4 .2* (**D &(65 A2/ ,/;;/A*1 .2* 2*&XB" &(6*1 A&((!/(3 &41 -&((!*1 & 7/(.!/4 /, .2*!(<0(1*43/6* *:0!76*4. 7(!4-!7&;;5 .2* 32!*;1 .2* 4*-*33&(5 <&>>&>* &41 .2* 030&; 7(/=!3!/4 ,/(.2(** 1&53 6/4>.2* &-*1/4!&43 .2* ;!>2. !4,&4.(5 A*(* 3/ -&;;*1 ./ 1!3.!4>0!32 .2*6 ,(/6 .2* 2*&=5 A("1 & / &41 .2* &(-2*(3 2*5 A/(* & (/041 ,*;. 2&. & 5 & ;!4*4 K*(D!4 &41 2&1 & ;/4> 1&>>*(&41 & 32/(. 2&41"7!D* 2*5 A*(* & 3.&41!4> </15 /, " 8]g 6*4 &41 !4 A&(,/(6*1 .2* D!4>3 </15>0&(1 & &

7*(<1(; ;!. H 1A*;;*(3 <*5/41 .2* 4/(.2 A!41 I & ! 7*/7;* /, (** D ;*>*41 A2/3* *0!3.*4-* A&3 1*4!*1 <5 3/6* /, .2* &4-!*4.3 A2!;* /.2*(3 *4F 1*&=/0(*1 ./ 1*,!4* .2*!(7/3!./4 6/(* 7(*-!3*;5 2*5 A*(* 3&!1 ./ 1 *;; ,&(&A&5 !4 .2* 4/(.2 A2*(* .2* 304 /4;5 (/3* &41 3*. /4-* & 5*&(& ,&4-5 10* 7*(2&73 ./ 3/6* 1!6 (*7/(. /, .2* ;/4>&(-.!-306F 6*(1&5 2* ,(0!.3 /, .2* *&(.2 (!7*4*1 :0!-D;5 A!.2 .2*6 .2*5 ;!=*1 !4 04<(/D*4 2&77!4*33 D4/A!4> 4/ =!/;*4-* /(3.(!,* &41 (*&-2*1 .2* &>* /, 5*&(3 &45 A2/ A*(* A*&(5 /, ;!,* -&3.!4> .2*6F 3*;=*3 ,(/6 & 3&-(*1 (/-D !4./ .2* 3*& 2* 65.2!3 -/44*-.*1 A!.2 .2* A/(32!7 /, .2* >/1 /, ;!>2. 7/;;/ A2/ 10(!4> .2* 1&(D A!4.*(A&3 3077/3*1 ./ =!3!.2*6 &3 2!3 7(!*3.;5 7*/7;* !4 & -2&(!/.1(&A4 <5 3A&43 (*.0(4!4> ./ *;72! /(.2* 306F 6*(2*(* A&3 & .(&1!.!/4 !4 *;"3 .2&. !4 *&(;!*(.!6*3 .2*5 03*1 ./ 3*41 ./ .2&. !3;&41 .2* ,!(3.,(0!.3 /, .2* K(2&(=*3.3 <5 A&5 /, /1 4& 2*33&;5 &41 0</*&

K.7 (1*3 8 .(4* /, .2* *4 ..!- (&./(3 </6 &</0. - TN 3/4 /, .2* .2*4!6! ;&0-!7703 /* =(&3 & 707!;/, ;&./ &41 3 -(&.*3 &41 A/4 ,/(2!63*;, &4!67/(.&4. 7/3!.!/4 &3 &,/(*43!- &41 7/;!.!-&; /(&./(&;.2/0>2 2!3 7(!=&.*;!,* A&3 4/. 04<;*6!32*1 3 &3 3.&.*36&4 2* 1*-!1*1;5 32&(*1 .2* =!*A3 /, *6/3.2*4*3 &41 &3 2!3 3.*&1,&3. &;;5 !4 .2* 3.(0>>;* &>&!43. .2* &-*1/4!&4 7&(.5 .!3 .(0* .2&. 2* &,.*(A&(13 Y (@C .//D 7&(.!4 .2* 7(/3*-0.!/4 /, *6/3.2*4*3 A2*4 &--03*1 /, 2&=!4> .&D*4 <(!<*3 ,(/6 ;*0&41*(3 .(*&30(*(&(7 ;03 &71 .2&. 2* -/4.(!<0.*1 ./ 2!3 -/41*64&.!/4 /4 .2&. -2&(>* ,.*(.2* 1*3.(0-.!/4 /, 2*<*3 <5 ;*O&41*(f RV!.'A&3/4;5 A!.2!1,,!-0;.5 .2&. 2* &41 *6/3.2*4*3 *3-&7*1 <*!4> >!=*4 07 ./ .2* &-*1/4!&43 ,.*(.2* 1*&.2 / ;*O&41*(f @ 2* A&3 .2* -2!*, !43.!>&./(/ .2* &6!&4 &(&.2* 04,/((.04&.* -/4-;03!/4 / A2!-2 2* &41 *6/3F .2*4*3 8A2/ 2&1 <**4 (*-/4-!;*1 ./ /4* &4/.2*(!4 .2* 6*&4.!6*(&41 /.2*(7&.(!/.3 A*(* -/41*64*1 ./ 1*&.2<5 .2* &-*1/4!&4

&41 .203 ,/(6!4> *7/1*3 43.*&1 /, .2* "9 2* &;3/ 6&1* 03* /, !.3 !4F =*(.*1 ,/(6 .2* (8" Y. 0(.2*(((*F 7(*3*4.&.!=*3 /, .2!3 -;&33 A*(* 2!3 5/04>*((-/4.* 6 7/(&(5 " 1 &41 " -/, 72*303 8&</0. ?CN (.2* !4=*4./(/, .2* 6*.(*-&;:*1 .2* (/("" .2* H ;&6*I /(H ;!6 7!4> !&6<03 I !4 A2!-2 .2* ;&3.!&6<!-,//.!3 (*F 7;&-*1 <5 &.(/-2** A2!-2 &3!.A*(* ;!6 73 &. .2* *41 /, .2* =*(3* &41 >!=*3!.!&-/6!-*,,*-. "" *6 7;/5*1 .2* !&6<!- ,/(6!4 K03.!,5!4>2!3 7/;!.!-&, &!63 !4 .2* ,&-* /, 2!3 /77/4*4.3 , .2* ;&.*(!&6<!-A(!.*(3 6&5 <* 6*4./!4*1 9 /(9 " A2/3* *0.&4. +1 & " RT9 6&5<* &33!>4*1 ./ .2* (1-*4.0(5 * A&3 .2* -/67/3*(/,6!6*3!4!&6<!-6*.(* & D!41 /, !6!.&.!=* 7/0(.(&5&, /, 6&44*(3 !4 -2/;!&6<!-=*(3*3 3!6!;&(./ .2/3* /, .2* /6&4 6" !4 .2* $3. -*4.0(5 - (/6 .2* 6!11;* /, .2!3 -*4.0(5 /4F A&(13 ;&67!/43 K$!&6<!- =*(3* <*-&6* /66/4 &6/4> .2* /6&43 .3 *&(;!*3. (*7(*3*4.&.!=*3!4-;01*1A " $< $ &41 &;3/ @(!4 2!3 /1*3 !6!.&.*1 .2* 6*.(*3 /, (-2!;/-203 . 41*(.2* 67!(* & ,*A 7/*63 <5 &41 " <*;/4> ./ .2!3 -;&33 ;&6<;!-203 8$9 (**D A(!.*(/, (/F 6&4-*3 </6 !4 5(!& A2/ -/67/3*1 !4 .2* 3*-/41 2&;, /, .2* !41 -*4.0(5 &((/6&4-* !4 3!0.**4 <//D3 -&;;*1 ,(/6 .2* 3-*4* /, .2* >(*&.*(7&(. /, .2* ./(5 ! " .(*;&.*3 .2* ;/=*"&1=*4.0(*3 /, 2/1J4*3 &41 !4/4!3 *4 /4;5 7/33*33 &4 *7!./6* /,!.<5 2/.!03 8@9 (**D 72!;/3/72*(,(/6 2&;-!3 !4 5(!& &707!;/, /(725(!43 &41 .2* ,/041*(/, .2* 5(!&4 3-2//;/, */" ;&./4!-72!;/3/725 *4 1!*1 &</0. N *6 7;/5*1 .2* */" ;&./4!-72!;/3/725 *4F .!(*;5!4 .2* 3*(=!-* /,7/;5.2*!3.!-(*;!>!/4 &41 6!4>;*1 !. A!.2 (!*4.&;307*(3.!.!/4 A2!-2 2* *41*&=/0(*1 ./ K03.!,5 /4 37*-0F ;&.!=* >(/0413" *4 *=*4 .&0>2. .2&. 1!=!F 4&.!/4 &41 6&>!-A*(* 4*-*33&(5 ./ <(!4> &</0. &(*"&<3/(7.!/4 !4./ .2* *!.5 *4 2!63*;, 2&1 .2* (*70.&.!/4 /, A/(D!4> 6!(&-;*3 &41 A&3 2!>2;5 =*4*(&.*1 <5 2!3 1!3-!7;*3 , 2!3 A/(D !4 .*4 </!D3 /4 .2* 5.2&>/(*&4 72!;/3/725 A* 3.!;, 7/33*33 ,/0(7&(.3 !4-;01!4>&;!,* /, 5.2&>/(&3 &4 04-(!.!-&, &41 -&(*;*33 -/6F 7!;&.!/4 ,(/6 .2* A/(D3 /, *&(;!*(A(!.*(3 A/(D ,/(6*(;5 &..(!<0.*1 ./ 2!6 /4 .2* .2*/;/>5 /, &(!.26*.!-3*..!4>, /(.2 .2* 653.!- ;/(* /, 406<*(3 &--/(1!4> ./ .2* ;&.*(5.2&>/(*&43 &41 ;&./4!3.3 !3 4/. A(!..*4 <5 2!6 &45 6/(* .2&4 .2* A/(D /4 .2* 53.*(!*3 /, >57. /.2 2/A*=*(<*;/4> ./ 2!3 3-2//; ;!7,!.23 /4 /, (403 &41 &*&* & !.&4 A2/ *!.2*(<5 ;B6"4* /(3!& .2*" 1&0>2.*(/, -*&403 <*-&6* .2* ,&.2*(/, .;&3 *4/*.!03 (6*.2*03 &41 7!6 " .2*03 * A&3 .2(/A4 !4./ &(.&(03 A!.;! 2!3 *4/*.!03 /4&--/04./, 2!3 (*<*;;!/4 &>&!43.L*03 !!3;/4 8/(, &=/0(!.* /, *6 .*(A2/ !4 (*.* <*-&6* <5 2!6 .2* 6/2.*(/, ;0.03 L*03 &--/(1!4>;5 D!;;*1 ;&3!/4 A!.2 &;,&32 /, ;!>2.4!4> !<5-03 (**D ;5(!-7/*./, 2*>!06 !4 /A*(.&;5 &</0. V N (!D* 4&F -(*/4 2* ;*1 & A&41*(!4> ;!,* &41 37*4. 60-2 /, 2!3 .!6* &. .2* -/0(. /, <;5-(&.*3 /, &6/3 --/(1!4>. /2!3 *7!.&72 2* 1!*1 !4 2!3 4&.!=* ./A4 &--/(1!4> ./ .2* ;*>*!(1 6&1* ,&6!;!&(<5 -2!;;*(3 7/*6 2* A&3 3;&!4 /4 &K/0(4*5. / /(!4.2 &41 2!3 60(F 1*(*(3 A*(* 1!3-/=*(*1 <5 &,;/-D /, -(&4*3 !3 7/*63 A2!-2 A*(* -/;;*-.*1 !4./ 3*=*4 </!D3 30(=!=* !4 3-&4.5 ,(&>6*4.3 /4;5 2*5 1*&;.7&(.;5 A!.2 65.2/;/>!-&, .2* 6*3 !4 .2* 6*.(*3 /, .>3!-2/(03 &41 7&(.;5 A!.2 ;/=*"3/4B !4.2* 37!(!./, ,,!/;!-;B!* 7/*.(5 ,0;;/,H>;/A!4> 7&33!/4 &41 3*43!<!;!.5 . A&3 6&!4;5 ./ .2* ;&..*(.2&. 2* /A*1 2!3 ,&6* !-J!B03 8$9 2* 2*(/ /, .2* ..!-1*6* /, -&(!& 41*(.2* (*!>4 /, &41;/4 2* (*-*!=*1 .2* =!4* ,(/6 !/4',303 !4 (*.0(4 ,/(2!3 2/37!.&<;* (*-*7.!/4 /, .2* >/1 3F 2* A*4. &</0. .2* ;&41 A!.2 3D!43 ,0;; /, A!4* !4 /(1*(./ 37(*&1 .2* -0;.!=&.!/4 /, .2* =!4* &41 3/6 *32*72*(13 <*-&6* !4./0!F -&.*1 /4 .2* 4*A 1(!4D .2*!(/67&4!/43 .2!4D!4> .2*5 2&1 <**4 7!3/4*1 3;*A 2!6 &41 *!.2*(-&3 2!3 <15 !4./ &1(5 <(//D /(<0(!*1 2!6 041*(& .(** /4 /04 56 *." .03 !3 1&0>2.*(9 1 " ,/041 !. &,.*(&;/4> 3*&(-2 <*!4>;*1 ./ .2* 7/ <5 2*(,&!.2,0; 1/> *! &41 204> 2*(3*;, /4 .2* .(** !/45303 704!32*1 .2* ;&41 A!.2 & 7;&>0* &41 .2* 6&!1*43 A!.2 6&14*33 3/ .2&. .2*5 2&4>*1 .2*63*;=*3 &,.*(.2* 6&44*(/, (!>/4* /! *07!&.* .2* >0!;. /, 3;&5!4> -&(!03 &41 ./ &=*(. .2* -0(3* .2* ,*3.!=&; /, .2* 8.2* H 3A!4> I A&3 ,/041*1 !4 2*(2/4/0(0(!4> .2!3 &;; 3/(.3 /, 36&;; !6&>*3 A*(* 204> /4 .2* .(**3 &41 3A04> &41 ,(0!.3 A*(* </0>2. &3 &4 /,,*(!4> ./ .2* ,&.,;*(&3 A*;;* &3 ./ .2* 1&0>2.*(-&(!03 A&3 7;&-*1 &6/4> .2* -/43.*;;&.!/43 &3 /G (/(2 (!>/4* &3 = 1 &41 3*(& &3 , ! " 8!9 /4 /, 8 <&;03 /, 7&(.& 5 (2*

5672 (;<-*& 2* A&3 .2* ,&.2*(/ , *4*;/7* A!,* /, 1533*03
!- (03 /4 /, &*1&;03 2!;* 2* &41 2!3 ,&.2*(A*(* ,;5!4> &A&5 ,(/ 6 (*.* <5 6*&43 /, A&0*4 A!4>3 !4 37!.* /, 2!3 ,&.2*(3 A&(4!4>3 2* ,;*A .// 4*&(.2* 304 3/ .2&. .2* A&0 6*;.*1 &41 2* 3&4D !4./ .2* 3*& &41 A&3 1(/A4*1 ,.*(2! 6 .2* !3;&41 A2*(* 2!3 </15 A&3 A&32*1 &32/(* &41 <0(!*1 <5 *(&-;*3 A&3 -&;;*1 &41 .2* 30((/041!4> 3*& .2* H -&(!&4 *& I
.-?$03 1(*&6 ">/1 # &
-2.25/-*4.&.!(3
-.!403 4* /, .2* 6/3.,&6/03 &(-2!F .*-.3/, (**-* 2*,;/0(!32*1 !4 .2* 3*-/41 2&;, /, .2* V.2 -*4.0(5 5 &41 A&3 & -/4F .*67/(&(5 /, *(!-;*3 &41 2!1!&3 !3 6/3.,&6/03 A/(D3 A*(* .2* &(.2*4/4 /4 .2* -(/7/;!3 &. .2*43 &41 .2* .*67;* /, 7/;;/ &. &333* 4*&(2!>&!;& !4 (-&1!& , </.2 .2*3* *1!,!-*3 !67/(.&4./ (*6&!43 &(* !4 *0!3.*4-* /3./ /, .2* -/;0643 /, .2* .*67;* &. &333* &(* 3.!;;3.&41!4> 4 .2* K01>6*4./ /, .2* &4-!*4.3 !./ A&3 .2* 6/3.<*&0.!,0;* .*67;* !4 .2* *;/7/44*303 &,.*(.2* .*67;* /, .2*4* &. ">1& A2!-2 A&3 .2* /(D /, * 7&3 f &03&4!&3 =!!! C$ ` g
13*&4 &-.K,;\8 (5 &<0;/03 <*!4>3!4 (**D 65.2/;/>5 A2/ 2&1 .2*!(/(!F >!4&; 2/6* !4 2(5>!&4 1& <0. A*(* &,.*(F A&(13 .(&43,*((*1 <5 ;*>*41 ./ .2* 6/04F .&!4 /, .2* 3&6* 4&6* !4 (*.* &41 A*(* -/4,/041*1 A!.2 3!6!;&(<*!4>3 -&;;*1 .2* + (" $ $ &41 $ " A2/ A*(* &;, ,&<0;/03 <*!4>3 !4 .2* 3*(=!-* /, 2*& KB< ;* 8.2* H 13*&4 /.2*(I9 2*5 A*(* &--(*1!.*1 A!.2 2&=!4> 1!3-/F =*(*1 &41 2&=!4> <**4 .2* ,!(3. ./ A/(D !(/4 &41 -/77*(" A!.2 2&=!4> !4.(/10-*1 603!- &41 (25.26 !4./ (**-* &41 A!.2 <*!4> 7/33*33*1 /, 6&>!- 7/A*(2(** /, .2* 2(5>!&4 &-.5;! 2&1 4&6*3M $ 8.2* 36*;.*(9 5 " " 8.2* 2&66*(9 &41 "" 8.2* &4=!;9 6/4> .2* (*.&4 &-.5;! A2/ A*(* ,!=* .*4 &41 *=*4 6/(* !4 406<*(A&3 .2* H 13*&4 *(&-;*3 I & 7*(3/4!,!-&.!/4 /, .2* 7(/-(*&.!=* 7/A*(3 /, 4&.0(* A2/ &;3/ &,,/(1*1 6&>!-&; 7(/F .*-.!/4 &>&!43.7*(!;3
1&3 &41 54-*03 /43 /, 72 (*03 /, *33*4!& &41 /, (*4* & 7&!(/, <(/.2*(3 &3 2*(/!- &41 &3 !43*7&(&<;* &3 .2*!(-/03!43 &3./(&41 /;;00 8 ;B1*0-*39 2* 5672 &(7*33& 1&0>2.*(/, .2* -&(4&4!&4 (!=*(">/1 0*403 A&3 A//*1 <5 7/;;/ A2*4 1&3 -&((!*1 2*(/,, !4 & A!4>*1 -2&(!/. >!=*4 2!6 <5 3*!1 4 2*4 7/;;/ /=*(.//D .2* ,0>!.!=*3 !4 *33*4!& 1&3 A2/ A&3 .2* 4 H .2* 3.(/4>*3. /, ;!=!4> 6*41 f /6*(. !O VV?g 3.(*.-2*1 2!3 </A &>&!43. 7/;;/ L*03 !4.*(7/3*1 &41 >&=* .K!* 1&63*; 2*(-2/!-* /, 30!./(3 32* 1*-!1*1 !4 ,&=/0(/, .2* 6/(.&; &3 32* ,*&(*1 7/;;/ A/0;1 1*3*(. 2*(,.*(.2&. .2* >/1 2&.*1 2*(32* 2*(3*;, &41 2*(<*&0.!,0; 1&0>2.*(;*/7&.(& /(; 5 4* A!,* /, *; &>*(&41 .2*!(1&0>2.*(&;; 1!*1 5/04> &41 </0>2. 6!3,/(.04* /4 .2/3* .2&. ;/=*1 .2*6 1&3 &41 .2* D**4"3!>2.*1 54-*03 A2/ -/0;1 *=*4 3** !.../ .2* 2*&(./, .2* *&(.2 K/!4*1 !4 .2* &;51/4!&4 04. &41 .2* !(>/4&0.!- *07*1!./4 2*5 6*. .2*!(*41 ,!>2.!4> &3./(&41 /;;00 A!.2 A2/6 .2*5 2&1 <**4 <(/0>2. 07 3 .2*5 A*(* &;, (*.0(4!4> ,(/6 & (&!1 !4./ (-&1!& 1&3 A&3 &77/!4.*1 ./ 1!=!1* .2* -&..;* .2*5 2&1 -&7.0(*1* 2* 1!=!1*1 &4 /0 !4./ ,/0(7/(.!/43 &41 1*-!1*1 .2&. A2/3/*=*(1*=/0(*1 2!3 7/(.!/4 ,!(3. A&3 ./ 2&=* .2* ,!(3. 2&;, /, .2* 37/!; &41 2* A2/ ,!4!32*1 03 4*0. .2* 3*-/41 2&;, * ,!4!32*1 2!3 /A4 &41 2!3 <(/.2*(3 32&(* ,!(3. &41 1(/=* .2* -&..;* &A&5 2* !/3-0(! A*(* *4(&>*1 &41 2!1 .2*63*;=*3 ,(/6 .2* <(/.2*(3!4 &2/;;/A /&D". (**" <0. .2* D**4 3!>2. /, 54-*03 1*.*-.*1 .2*!(;0(D!4>" 7;&-* &41 1&3 3.&<<*1 &3./(!4 .2* .(** 2*(*07/4 /;;00 7!*(-*1 54-*03 .2(/0>2 A2!;* 1&3 A&3 3;&!4 <5 .2* ;!>2.4!4> L*03 /(&4/.2*(&--/04. /, .2* /(!>!4 /, .2* :0&((*; ( )
16/4 /4 /, 7/;;/ &41 /, 3.*(;* 1&0>2.*(/, ,.(/403" &3**(A2/ .//D 7&(. !4 .2* (> 4&0.!- *07*1!./4 &;.2/0>2 2* ,/(*3&A .2&. !. A/0;1 ;*&1 ./ 2!3 /A4 1*&.2 * A&3 2!;;*1 <5 &! A!;1 </&(!4 .2* ;&41 , .2* J(;&4154! !4 !.254!& * A&3 A/(32!77*1 &3 & 2*(/ <5 .2* !4F 2&<!.&4.3 /, .2* ./A4 /, *(-;*!& !4 /4.03 A2!-2 A&3 <0K;. &(/.!41 2!3 >(&=* <5n-/66&41 /, 7/;;/
!1 6 4 S 2* 3/4 /, *0-&;!/4 /, (*.* &41 >(&413/4 /, ;4/ *!4> /4* /, *;*4 3 30!./(3 2* &41 *(; 4*3 .2* 3/4 /, 2!3 2&;, <(/.2*(A*4. A!.2 *!>2.5 32!73 ./ (/5 A2*(* 2* &77*&(3 !4 /6*(&3 &6/4> .2* <(&=*3. /, 2*(/*3 * !3 1*F 3-(!<*1 f!4 !!! Tg &3 /4* /, .2/3* A2/ 3&,*;5 (*.0(4*1 ./ 2!3 4&.!=* ;&41 --/(1F !4> ./ & ;&.*(3./(5 2* A&3 -&0>2. !4 & 3./(6 /4 2!3 A&5 2/6 * &K!1 =/A*1 ./ 3*!1/4 .2&. !, 2* (*.0(4*1 !4 3&,*.5 2* A/0;1 3&-(!,!-* ./ .2* >/1 A2&.*=*(2* 32/0;1 ,!(3. 6 **. /4 2!3 ;&41!4> !3 3/4 -&6* /0. ./ 6 **. 2!6 &&1 A&3 &--/(1!4>;5

3&-(!,!-*1" &' 7;&>0*# .4*(*07/4$ <(/D*# /0.$ 2*# A&3& <&4!32*1$ <5$ .2*# (*.&43$ &41$ <*./!/D& 2!6 3*;,$ ./$ &;&<(!&$ *# &,.*(A&(13& A!.2F 1(*A$ ./$ /;/72/4$!4$ 3!&$ A2*(*# 2*# !3$ 3&!1$ ./$ 2&=*# <**4$ <0(!*1$!3$ ./6<$ 2/A*=*($ A&3& 32/A4$ <5$ .2*# (*.&43$ &.$ 4/303$ A2*(*# 2*nA&3& A/(32!77*1$ &3$ &' 2*(!103$ 2*# .2!(.**4.2$ /($,!,.**4.2$ 1&5$ /,$ .2*# /6&4$ 6/4.2$ 83**# 5 5 $.$ A&3& 3&-(*1$ ./$ 07!.*(15;,$ 8!4$ (**D$: "$ 1!6!40.!=*# /,$ $ H,/(6 I$ H &' 36&;,$ 7!-.0(*I 9$ $ 7/*.!-$ 3D*.-2$ /,$ -2&(&-.*($ 37*-!&;,5$!4$ -/44*0!/4$ A!.2$ 7&3./(&,$;!,*$ 8(**# (" $ 4 `= . $ * ;!*$ 8H &$.(//7I9$ 8;9" 2*$ 7&(.&4$.*(6$,/($ &' -/67&45$ /,$ </53$ /,$ .2*# 3&6*# &>*$ A2/$ A*(*#</(/0>2.$ 07$ ./>*.2*($ # $)(8@9$ 4$ .2*# /(>&4!Q&.!/4$ /,$ .2*# &-*1/4!&4$ &(65$ &' 3:0&1(/4$ /,$ -&=&;(5$ >*4*(&;,5$! $ 3.(/4>$ 041*($ .2*# -/66&41$ /,$ &4$ (# $ / ! &$ &0>2.*($ /,$ 4*B3& &41$ &=!4;&$ --/(1!4>$ ./$ .2*# ;*>*41$ /60;03& &41$ *603& A*(*# 2*($ 3/43& <5$ &(3$ # $ 3 $ &41$ -$ $ $ + ;!&1$ $ / & $ &41$: $ F $;;;14*$ &0>2.*($ /,$ (!&6$ &41$ B- <$ &41$ A!,*# /,$ .2*# 2(&-!&4$ 7(!4-*# ;5"# 6 3.1($ *($ 5/04>*3.$ <(/.2*($ 1;$ 1 (03& A&3& *4.(03.*1$ ./$ 2*($ -&(*# <5$ 2*($ 7&(*4.3$ &41$ 32*# <(/0>2.$ 2!6$ 07$ &3& 2*($ /A4$ 3/4$ A2!;*# 32*# >&=*# /0.$ .2&.$ 2*($ /A4$ 3/4$ *;"# 72;;03& /($ 1!75;03& A&3& /;51/(03$ 2*4$ /;56*3./($ 8A2/$ A&3& <(!<*1$ <5$ .2*# (**D39& 60(1*(*1$ .2*# 3077/3*1$ /;51/(03$;!/4*# <;!41*1$ &41$ D!;;*1$ 2!6$! .2%0!&$ $ * $,!43$ 2*# 3/4$ /,$ (/3$ &41$ >(*&."(&41F 3/4$ /,$ &(1D403$ </(/.2*($ /,$ 331(J-0$ &41$ &456*1*$ &41$,&.2*($ /,$ &16*1/4$ *# /4-*# A*4.$,(/6$ 2!3& 4&.!=*# ./A4$ /,$ &("# 1&4!&$ 07/4$ /04.$ 1&$ ./$ 2(5>!&$ A2*(*# 2*# A&3& !-./(!/03& !4$ &4$ &.2;*.!-$ -/4.*3.$ 2*;1$ <5$ .2*# D!4>$ /,$ .2*# -/04.(5$ *3!1*# ,!,.5$ 5/0.23& &41$,!,.5$ 6&!1*43$ .2*# 7(!Q*# /,$ .2*# -/4.*3.$ .2*# D!4>$ >&=*# 2!6$ &.$ .2*# -/66&41$ /,$ &4$ /(&-;*$ &' 37/..*1$ -/ $ &41$ ./;1$ 2!6$ .2*($ ./$,/041$ &' -!.504$ .2*# 37/.$ A2*(*# 32*# ;&5$ *# &--/(1!4>;5$,/041*1$ /4$ .2*# &2!;;$ /,$ .2*# 2(5>!&4$.*$ .2*# ./A4$ A2!-2$ &,.*($ 2!6$ A&3& -&;;*1$ " $ &41$ &;3/$ + .$ 8 ($ + $ &,.*($ 26$,&.2*($ 2*4$ 2*# 1*6&41*1$ &' 3!>4$ /,$ L*03$ /4$ .2*# ,/;;/AF !4>$ 6/(4!4>$ 2*# ,/041$ .2*# , $ <*,/(*# 2!3$.*4. !6&>!4*3$ 2*# /6&4$ 7/(.(&!.$ 6&3D3& /,$ 1*-*&3*1$ 6*6<*(3& /,$ &' ,&6!;5" .2*5$ A*(*# 6&1*# /,$ A&O& &41$ 7&!4.*1$ &41$ 7(/F <&<;5$,&3.*4*1$ /4$ ./$ <03.3$ 2*5$ A*(*# D*7.$!4$ 36&;,$ A//1*4$ 32(!4*3& ;*.$!4./$ .2*# !44*($ A&;;3& /,$ .2*# $ f 2*# 1*3!>4$ /,$ .2*# ,04*(&,$ 6/406*4.$ (*7(*3*4.*1$!4$ .2*# &--/67&45!4>$ -0.$ 2&3& <**4$ /<=!/03;5$ 30>>*3.*1$ <5$ .2!3& 6*.2/1$ /,$ *432(!4!4>$ .2*# <03.g 43-(!7.!/43& 041*($ .2*# 32(!4*3& (*-/(1*1$ .2*# 4&6*3$ 6*(!.3$ &41$ *07;/!.3& /,$ .2*# 7*(3/43& .2*5$ (*,*((*1$ ./$ 2*# !6&>*3& A*(*# &((&4>*1$ &41$ -/44*-.*1$ A!.2$ /4*# &4/.2*($ <5$ 6*&43& /,$ -/;/0(*1$!4*3$!4$ 30-2$ &' &5& 3& ./$ *02!<!.$ .2*# 7*1!>(**# D /,$ .2*# ,&6 e$ 4$,*3.&;$ 1&53& .2*# 32(!4*3& A*(*# /7*4*1$ &41$ .2*# <03.3$ -(/A4*1$ A!.2$ <&5";*&=*3$.$,&6!;5$,04*(&;3$ .2*(*# A*(*

E' O?$35-A A' ?"? ' ' ' ' +.
8 /6*a' Y&.*(&4' 0B*0(&

7*/7;*# 37*-!&;;5$ &77/!4.*1$ ./$ A&;D$!4$ 7(/F -*33!/4$ <*,/(*# .2*# </15$ A*&(!4>$ .2*# 6&3D3& /,$ .2*# 1*-*&3*1$ 6*6<*(3& /,$ .2*# ,&6!;5$ &41$ -;/.2*1$!4$ .2*# " 1" $ /,$ .2*# (&4D& A2!-2$ .2*5$ 2&1$ 2*;1$ A2*4$ &;!=*$ 2*# (!>2.$ /,$ 2&=!4>$ .2*3*# &4-*3.(&;$!6&>*3& -&((!*1$!4$ 7(/-*33!/4$ A&3& /4*# /,$ .2*# 7(!=!F ;*>*3& /,$ .2*# 4/<!;!.5$ f ;5<!03$ =!$ V " ;!45$ > $ 000=$ @' ``' " $ U" /663*4$ $ </D$!!!$ -2&7$ 0!!! g 9 '1* " 8-/66&41*("!4"-2!*,9$ /6&4$.!.;*$ /(!>!4&;;5$ .2*# 1*3!>4&.!/4$ /,$ *&-2$ 3*7&(&.*# 7/33*33/($ /,$ &4$!41*7*41*4.$ -/66&41$ # " $ 4$ .2*# -/0(3*# /,$.!6*# !.$ <*-&6*# -03./6&(5$ ./$ &3306*# .2*# .!.;*# &,.*($ &' 6&4$ 2&1$ >&!4*1$ 2!3& ,!(3.$ >(*&.

"=!-./(5' 030&;;5'&,.*(' 2&=!4>' <**4' >(**.*1' &3' !67*(&./(' *!.2*(' <5' .2*' 3/;1!*(3' /4' .2*' <&..;*,!*;1' /(' <5' .2*' 1*-(**' /,' .2*' 3*4&.*' 41*(' .2*' 67!(*' .2*' .!.;*' A2!-2' A&3' 3*;1/6' -/4,*((*1' <5' 0>03.03' A&3' >(&4.*1' ,/(' .2*' ;&3.' .!6*' <5' !<*(!03' @@) ' .' A&3' 030&;;5',/;;/A*1' <5' &' .(!0672' &41' -*&3*1' A2*4' .2*' .(!0672' A&3' /=*(' 3' &' 7*(6&4*4.' .!.;*' !.' A&3' ,!(3.'' &3306*1' <5' 3*3&(' A2/3*' &1/7.*1' 3/4' &41' 2*!(' -.&'' =!&4' </(*' !.' &3' &4' !42*(!.*1' 1'' '' &41' ,(/6' .2*' 5*&(' ' CN' /4A&(13' &-F -/(1!4>' ./' &' -03./6' .2&.' &(/3*' &.' .2&.' .!6*' 30<3.!.0.*1' !.' ,/(' 2!3' 7(*=!/03' 2' '' '' &!43' .203' <*-/6!4>' ' ' % &*3&(' !43.*&1' /,' &*3&(' ' ' !3' !66*1!&.*' 30--*33/(3' !<*(!03' ; >.!;&' &41' ;&01!03' &<3.&!4*1' ,(/6' 03!4>' .2!3' '' '*' *(/' 03*1' !.' ,(*:0*4.;5' <0.' !.',!(3.'<*-&6*' 7*(6&4*4.' A!.2' *37&3!&4' 2*' *67*(/(3' &;3/'./!D' .2*' .!.;*' ' '' !4' !.3' *&(;!*(' 3!>4!,!-&.!/4' &,.*(' &' =!-./(5' A/4'<5' .2*63*;=*3' /(' /4' .2*!(' <*2&;, 67'(;06' 2*',0;;'D!4>;5'7/A*('&6/4>' G.2*' /6&43' .2*' (/5&;' &0.2/(!.5' /=*(' &;' 6*6<*(3' /,' .2*'3.&.*' ' .' &3' -'4,*(()1' "/4' .2*' 4*A;5' *;*-.*1' D!4>'<5' .2*' ' $ $ ' &' ,/(6&;' &33*6<;5' /,' .2*' 7&.(!F -!&43' -/67(!3!4>' .2*' ' &41' !.' -/4F 3!3.*1' /,' .2*' (!>2.3' /,';*=5!4>' .2*' -!.!Q*43' ,/(' 6!;!.&(5' 3*(=!-*' /,';*&1!4>' .2*' &(65' /,' %-*;*<(&.!4>' &' .(!0672' /,' *0*(-!3!4>' -!=!;' &41' -(!6!4&;' K0(!31!-.!/4' &41' /,' !4,;!-.!4>' 704!3226*4.' /4' .2*' -!.!Q*43' A2*.2*(' -/(F 7/(&;' /(' -&7!.&;' /(' 30-2' &3' &,!,*-.*1' *!.2*(' .2*!(' 7(7*(.5' /(' .2*!(' ;!<*(.5' '3566</;/,' ".2!3' &0.2/(!.5' A&3' .2*' &0*' &41' .2*' <041;*' /,' (/13' </(4*' <5' .2*' ;!-./(3' # ' > (' .2*' *3.&<;!3226*4.' /,' .2*' *70<;!-' .2*' ' A&3' .(&43,*((*1'./' .2*' .A/' -/430;3' &3' .2*' 30--*33/(3' /,' .2*' D!4>3' <0.' .2*' ,0;;' 7/A*(' /,' .2*' ' A&3' .2*4' ;!6!.*1' <5' .2*',&-.' .2&.' </.2' 7/33*33*1' .2*' 3&6*' 7/A*(' &41' .2&.' !4' .2*' 7*4&;.!*3' .2*5' !4,;!-.*1' !4' .!6*3' /,' 7*&-*' .2*5' A*(*' 30<F K*-.'./' .2*(!>2.' /,' &77*&;' # ' 7 =/ .!/9' &41' ./' .2*' !4.*(=*4.!/4' /,' .2*' .(!<04*3' /,' .2*' 7*/7;*' &,.*(' .2*' !43.!.0.!/4' /,' .2&.' /,,!-*' A2*4' .2*' -/430;32!7' A&3' 1*7(!=*1' /,' !.3' -!=!;' K0(!31!-.!/4' &41' .2*' 7(3*./(32!7' !43.!.0.*1' ,/(' .2!3' 70(7/3*' .2*' 7(3*./(3' &;3/' (*-*!=*1' .2*' * 4*=*(.2*;*33' !.' A&3' 6/(*' ;!6!.*1' # ('.2&4' .2&.' /,' .2*' -/430;3' A2/' !4' -/4.(&3.' A!.2' .2*' 7(3*./(3' &41' &;' /.2*(' 6&>!3.(&.*3' *0-*7.' .2*' .(!<04*3' 2&1' .2*' (!>2.' /,' /(1*(!4>' &41',/(<!11!4>' 2*' ' !4' !.3' 04F 1!=!1*1' &41' 04;!6!.*1' ,/(6' A&3' -/4F ,*((*1' /4' .2/3*' A2/' !4' *0-*7.!/4&;' -&3*3 A*(*' &77/!4.*1' 1!-.&./(3' .' A&3' &;3/' 7/33*33*1'<5' .2*' " ' <0.',/(',!=*' 1&53' /4;5' /(' -/430;3' &41' 7(3*./(3' .2*' R ' -/0;1' <*' H 7(//>0*1 I' ' 7(/;/4>*1' <*5/41'.2*!(' .!6*' /,' /,,!-*' <0.' .2*' R ' .203' 7(/;/4>*1' A&3' " ' ! * ' </041*1' A!.2!4' .2*';!6!.3' .a,' .,!*!(' 7(/=!4-*' 4' .2*' *70<;!-' !.' -/0;1' &;3/' <*' -/4,*((*1' <5' 6*&43' /,' .2*' ' <0.' .2!3' &-.',*;;' !4./' &' 6*(*',/(6&;!.5' 41*(' .2*' 67!(*' .2*' .*(6' ' !4-;01*1' .2*' 2!>2*3.' 6!;!.&(5' &0.2/(!.5' A2!-2' (*3!1*1' !4' .2*' *67*(/(' &41' A&3' .2*' ,/041&.!/4' /,' &;;' 2!3' 7/A*(' .' &3' .&D*4' 07' *!.2*(' &.' .2*' !43.&4-*' /,' .2*' 3*4&.*' /(' .2*' .(//73' .3' ,0;;' =&;!1!.5' 1*7*41*1' /4' !.3' (*-/>4!.!/4' <5' </.2 67;.!=!06' ' 1*7(*33!/4' !4' .2*' ,;//(' /,' .2*' /6&4' ' 6&1*' ,/(' .2*' 70(7/3*' /,' (*-*!=!4>' .2*' (&!4' A2!-2' -&6*' !4' .2(/0>2' .2*' /7*4' (//,' # ' ! (!4&/203' 2*' 6/3.' &4-!*4.' D!4>' /,' (>/3' 7(/7*(;5' .2*' >/1' /,' .2*' (!=*(' /,' .2*' 3&6*' 4&6*' 3/4' /,' -*&403' &41' *.253' &41' ,&.2*(' /,' 2<(/4*03' &41' ;/' ' ,.*(' .2*' ,;//1'/,' *0-&;!/4' 2*' !3' 3&!1' ./' 2&=*' ;*1' .2*!42&<!.&4.3'1/A4',(/6' .2*' 6/04.&!43' ./' .2*' 7;&!43' &41' A2*4' 3*!1/4' &41' *(&' -/4.*41*1',/(' .2*' 7/33*33!/4' /,' .2*' ;&41' 2*' 1*-!1*1' !4' ,&=/0(' /,' .2*' ;&..*(' 4' 704!32 6*4.' /,/(' .2!3' /3*!1/4' 6&1*' .2*' (!=*(3' /,' (>/3' 30,,*(' ,(/6' &' 3-&(-!.5' /,' A&.*(4-!!<&(&' 8 (' " (' 7*-!&;;5' 03*1' /,' 3;**7!4>' !4' &' 3&4-.0&(5' A2*(*' /(&F -0;&(' (*37/43*3'A*(*' 3/0>2.' .2(/0>2' 1(*&63' /(' 4*-(/6&4-5' # ' % & ' .' A&3' A!.2' &'=!*A'./' /<.&!4!4>' !4' &'1(*&6'&' (*=*F ;&.!/4' *!.2*(',(/6' .2*' >/1' /,' .2*' 3&4-.0&(5' /(' <5' -/4K0(!4>' 07' .2*' 37!(!.' /,' 3/6*' 1*&1' 7*(3/4' *(.&!4'7(*;!6!4&(!*'2&1'>*4*(&;;5' ./' <*' 7*(,/(6*1' !4' 7&(.!-0;&(' .2*' 3&-(!,!-*' /,' 3/6*' &4!6&;' /4' A2/3*' 3D!4' !.' A&3' /,.*4' -03./6&(5' ./' 3;**7' 2*3*' !4-0<&.!/43' A2!-2' A*(*' !4' =/>0*' &6/4>' .2*' (**D3',(/6' .2*' *&(;!*3.' .!6*3' <0.' A*(*' 4/.' *0.*43!=*;5' 7(&-.!3*1' &6/4>' .2*' /6&43' 04.!;' 041*(' .2*' 67!(*' >*4*(&;;5' ./(D' 7;&-*' !4' .2*' .*67;*' /,' 3-0;&7!03' .2*' >/1' /,' 2*&;!4> 41;>>.*3' /6&4' 1*!.!*3' /,' 04-*(.&!4' !67/(.' 2*5' &77*&(' ./' 2&=*' <**4' ;/-&;' 2*(/*3' A2/' (&4D*1' <*4*&.2' .2*' >/13' 30-2' &3' =&41*(' 4*&3' &41' /60;03 41!>!.&6*4.&' 2*' &.!4' .*(6',/(' &4' /,,!-!&;' -/;;*-.!/4' /,',/(63' /,' 7(&5*(' <*F ;/4>!4>' ./' .2*' " ' # ' < I' 4' .2*6' A*(*' 3*.',/(.2' .2*' =&(!/03' 7/A*(3' /,' *&-2' >/1' A2/' A&3' ./' <*' 306F 6/4*1' ./' &!1!4' 7&(.!-0;&(' -&3*3' &41' 4/4*

,&.2*(' ,'.2*' 6&4' ;*,.' 4/' A!,*' /(' -2!;1(*4' .2*' 1" ' /(' (*;&.!/43' !4' .2*' 6&;*' ;!4*' !42*(!.*1' &--/(1!4>' ./' .2*' 1*>(**' /,' .2*!(' D!432!7' ,' .2*(*' A*(*' 4/' 1" ' &41' .2*' 6&4' A&3' &'7&.(!-!&4' .2*' 7(/7*(.5' A*4.' ./' 2!3'1 " ' 2*' 1"$ ' /(' (*;&.!/43' !4' .2*' ,*6&;*' ;!4*' A*(*' /(!>!4&;;5' 4/.' *4.!.;*1' ./' !42*(!.' <5' .2*' -!=!;' ;&A' 0.' &3' .!6*' A*4.' /4' .2*!(' -;&!6' A&3' >(&10&;;5' (*-/>4!3*1' 6/(*' &41' 6/(*' ./' .2*' *0-;03!/4' /,' .2*' 1" ' 04.!;' &.' ;&3.' 03.!4!&4' *4.!(*;5' &</;!32*1' .2*' 7(!=!;*>*' /,' .2*' ;&..*(' &41' 30<3.!.0.*1' .2*' 7(!4-!7;*' /,' <;//1"(*;&.!/4F 32!73' ,/(' .2&.' /,' .2*' -!=!;' ;&A' *3.&;' !(>!43' A*(*' (*>&(1*1' &3' *4.!(*;5' -0.' /,,' ,(/6' .2*',&6!;5' 04!/4' &41' .2*(*,/(*' -/7;1' 4/.' !42*(!.' ,(/6' &4' !4.*3.&.*' 4/(' !4' -&3*' /,' .2*!(' 15!4>' !4.*3.&.*' 1!1' .2*' 7(/7*(.5' >/' ./' .2*!(' ,&6!;5' <0.' ./' .2*' 3.&.*' 0.' 04;!D*' /.2*(' A/6*4' .2*5' 2&1' 04;!6!.*1' (!>2.' /,' .*3.&6*4.&(5' 1!37/3!.!/4' ,' &!(**16&4' 1!*1' !4.*3.&.*' &41' -2!;1;*33' .2*' " ' &41' 2!3' A!,*' 2&1' .2*' ,!(3.' -;&!6' ./' !42*(!.' .2*4' .2*!(' -2!;1(*4' .2*4' .2*!(' 1" ' &41'8!,' .2*' " '"A&3' &'7&.(!-!&4' .2*4' 2!3' 1 " ' 4' ;&.*(' .!6*3' *=*4' !,' &' ,(**16&4' 15!4>' -2!;1;*33' ;*,.' &' "A!;;' .2*' " ' &41' 2!3' 3/43' 2&1' -;&!6' ./' 2&;,' .2*' 7(/7*(.5' 0>03.03' 6&1*' &' 406*(' /,' 7(/F =!3!/43' !4' .2*' 6&..*(' /,' ,(**16*43' !42*(!F .&4-*' 2*' -!"=!;' ;&A' 6&1*' !.' /670;3/(5' /4' &' 6&43' ' (' ./' &--*7.' &4' !42*(!F .&4-*' A2*.2*(' ;*,.' <5' A!;;' /(' 4/.' 0.' &3' .2*' 1*<.3' A*(*' .&D*4' /=*(' A!.2' .2*' 7(/F 7*(.5' .2*' ' /,' .2*' 7(&*./(' &;;/A*1' .2*' 2*!(3' ./' 1*-;!4*' !.' ' ' 4/' /.2*(' 7*(3/43' 4&6*1' !4' .2*' A!;;' -/0;1' <*' -/6F 7*;;*1' ./' &--*7.' .2*' ;*>&-5' # ' F 443' 1!1' 4/.' -/6*' !4./' *0!3.*4-*' !4' (**-*' 04.!;' .2*' .!6*3' A2*4' !4' -/43*F :0*4-*' /,' .2*' !4-(*&3*' /,' .(&,,!-' .2*' -03./6' /,' 2/37!.&;!.5' A2!-2' A&3' ,/(6*(;5' 7(&-F .!3*1' /4' &4' *0.*43!=*' 3-&;*' <*-&6*' 6/(*' &41' 6/(*' -/4,!4*1' ./' -&3*3' A2*(*' !.' A&3' *!.2*(' !42*(!.*1' /(' A&3' .2*' 30<K*-.' /,' 37*-!&;' &>(**6*4.' /4' </.2' 3!1*3' *3!1*3' 7(!=&.*' !443'# " ' A2!-2'/,,*(*1',//1' &3' A*;;' &3' 32*;.*(' ./' 3.(&4>*(3'70< -' !443' A2!-2' &.' ;*&3.' >&=*' 32*;.*(' &41' 4!>2."' :0&(.*(3' A*(*' ./' <*',/041' !4'3/6*' 7;&- 3' *37*-!&;;5' A2*(*' >(*&.'-(/A13',' 6*4' A*(*' &--03./6*1' ./' &33*6<;*',/(' .2*' -*;*<(&./4' /,' ,*3.!=&;3' &41' &;3/' 4*&(' .*67;*3' A2!-2' A*(*' 60-2' "=!3!.*1' 2*' 7(/,*33!/4' /,' &4' !44"D**7*(' A&3' ;!..;*' *3.**6*1' 3.!;' ;*33' .2&.' /,' &' .&=*(4"D**7*(' A2/3*' <&(' # 2 " ' !.' A&3' 4/.' -/43!1*(*1' 7(/7*(' ,/(' (*37*-.&<;*7*/7;*' ./',(*:0*4.'f 3/-(' (*/7' CTg" !4' .2*43' &' =!3!.' ./' &' .&=*(4' A&3' *=*4 30,,!-!*4.' ./' ;*&1' ./' *070;3!/4' ,(/6' .2*' (*/7&>03 4' /(4*' &3' !4' 6/3.' 7&(.3' /,' .&;5' .2*(*' A*(*' !443' ,/(' .(&=*:;*(3' # ' &.' ;*&3.' &3' *&(;5' &3' .2*' @41' -*4.0(5' -' 4' .2*' >(*&.' 2!>2"(/&13' .&=*(43' A*(*'<0!;.' /4' 37*-0;&.!/4' <5' ;&41/A4*(3' (*3!1*4.' !4' .2*' 4*!>2</0(2//1' &41' A*(*' *!.2*(' ;*.' /0.' /(' D*7.' ,/(' .2*6' <5'3;&=*3' !.2' .2*' !4-(*&3*' /,' .(&,,!-' 3.&.!/43' ,/(' -2&4>!4>' 2/(3*3' # ' &41' ,/(' 4!>2.":0&(.*(3' &' " ' <*>&4' ./' <*' 7;&-*1' /4' .2*' 2!>2"(/&13' /,' &;K' .2*' 7(/=!4-*3' //D"32/73' &' " ' &41' .&=*(43' # " ' A*(*' 3*;1/6' ,(*:0*4.*1' <5' &45' <0.' .2*' -/66/4*3.' 7*/7;*' 2/3*' A2/' D*7.' .2*6' .=*(*' K03.' &3' 60-2' 1*F 37!3*1' &3' !4' (**-*' &41' A*(*' &-.0&;;5' -/4F 3!1*(*1' <5' .2*' ;&A' &3' 041*(' &' &4' =*4' !4' &4.!:0!.5' !.' A&3' .2*' -03./6' ./' 6&D*' !443' D4/A4' <5' &' 3!>4"</&(1' &" 1" ' 203' !4' /67*!!' &4' !44' 2&3' <**4' 1!3-/=*(*1' A!.2' .2*' 3!>4' /,' &4' *;*72&4. .4 ' &0>2.*(' /,' &1603' &41' A!,*' /,' .2&6&' # ' *!4>' ,/;;/A*1' <5' .2*' ;&..*(' "B=2*4' 2*' 2&1' <**4' 3*!Q*1' A!.2' 6&1F 4*33' 32*' ,;*1' ./' .2*' -;!,,' ;0(;3' <*.A**4' >&(&' &41' /(!4.2' &41' .2*(*' .2(*A' 2*(F 3*;,' !4./' .2*' 3*&' A!.2' 2*(' !4,&4.' 3/4' *;;"' -*(.*3' .' .2*' !3.2603' 2/A*=*(' 6/.2*(' &41' -2!;1' A*(*' -&((!*1' &32/(*' <5' &' 1/;72!4' &41',/(6' .2&.' .!6*' ,/(A&(1' 2/4/0(*1' &3' 6&(!4*' 1!=!4!.!*3' &;/4>' .2*' 32/(*3' /,' .2*' *1!.*((&4*&4' *37*-!&;;5' /4' .2*' -/&3.' /,' *>&(&' &41' &.' .2*' 3.2603' /,' /(!4.2' 4/' A&3' A/(32!77*1' &3' ; (' &41' *;!"' -*(.*3' &3', "' 2*5' A*(*' (*>&(1*1' &3' 1!=!4!.!*3' A2/' &!1*1' 6*4' !4' 7*(!;' /4' .2*' 3*&' 3' *&(;5' &3' /6*(' A*' 2&=*' 4/' 6*4F .!/4*1' &3' (*3-0!4>' 1533*03' ,(/6' 1&4>*(' <5' .2(/A!4>' 2!6' 2*(' =*!;' W ' =' R " V g' 6/4>' .2*' /6&43' 4/' A&3' !1*4.!,!*1' "A!.2' '8: 4 9 43.!;&' ' /433' 4*&(' .2*' *41 4.*(/*33!1' 8$9' 2*' &.!4' .*(6',/(' .2*' !4.*(,*(*4-*' /,' &' 2!>2*(' /,,!-*(' A!.2' 3/6 l' 70<;!-'&-.' /4' .2*' 7&(.' /,' /4*' ;/A*(' !4' (&4D' 1' -&;;!4>' &' 6**.!4>' /,' .2*' -/66/43' 2*' .(!<04*' /,' .2*' 7*/7;*' -/0;1' .203' !4.*(F ,*(*' A!.2' .2*' 7(&*./(' :0&*3./(' &41' &*1!;*' 203' !.' A&3' *=*4' /7*4'./.2*' .(!0672' ./' &' -/430;' /(' &' 7(&*./(' 8@9' 2*' :0&32!4>' /,' &4' /,,!-!&;' &-' 3' !4' 8$9' .2!3' 6!>2.' <*' !330*1' <5' &' 2!>2*(' /,,!-!&;' &>&!43.' &' ;/A*(' /4*' &41' &;B' <5' /4*' -/;;*&>0*' &>&!43.' &4/.2*(' 1' <5' .(!<04*' &>&!43.' .(!<04*' .' A&3' 4*-*3F 3&(5' .2&.' .2*' " ' 32/0;1' <*' 6&1*' !4'7*(3/4' &41' !4' >*4*(&;' !404*1!&.*;5' &,.*(' .2*' &-.' !4' :0*3.!/4' .' A&3' *67;/5*1

5 % $ ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' $ ' ' % ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '

./' 2&=*' <(/0>2.' .2*' !6&>*' /,' .2*' &0(!-'
(.*6!3' ./' .2*' ..!-'1*6*'/,' (&0(/4'&41'
./' 2&=*'1!*1'&41' <**4' <0(!*1' .2*(*' &3' !.3'
7(!*3.*33' 2*' A&3' *=*4' !4.(/10-*1' !4./'
..!-' ;*>*41' &3'1&0>2.*(' /,' 2*3*03'&41'
*;*4' 4' /.2*(' 7;&-*3' &;3/' 30-2' &3'
7&(.&' .2*' !6&>*' A&3'32/A4'&41' 32*' A&3'
(*>&(1*1'&3'&'7(!*3.*33'A2/'2&1' <(/0>2.'!.'
./' (**-*' ,(/6' &6/4>' .2*' -5.2!&43' 4'
&;;' 7(/<&<!;!.5' 72!>*4!&' A&3' /(!>!4&;;5'&
1*3!>4&.!/4'/,' (.*6!3'2*(3*;,' &41' /0.' /,'
.2!3'*7!.2*.' /,' .2*' >/11*33' .2*' 7*(3/4&;!.5'
/,' .2*' 7(!*3.*33'A&3' !4' .!6*' *=/;=*1' *('
>(&=*' A&3' &;3/'32/A4'&.' *> (' --/(1!4>'
./'&4/.2*(';*>*41'32*'!3'3&!1' ./' 2&=*' <**4'
6&1*' !6 6/(.&;' <5' (.*6!3' &41' ./' 2&=*'
;!=*1'/4'!4'.2*' !3;&41'/,' *0-*'&3' .2*' A!,*'
/,' -2!;;*3'041*(' .2*' 4&6*' /,'

72!.03' /4' /,' 0(5.03' /,' 8 -2 ; &'
&41' &',(!*41'/,' *(&-;*3' A2/' !4'&',!.'/,'
6&14*33'20(;*1' 2!6' 1/A4' 2*&1;/4>',(/6'
.2*' <&..;*6*4.' /,' 2!3' -&3.;*' &.' !(543'
'

(*4*' '

!(!3' 2*' 1&0>2.*(' /,' 2&06&3'&41'/,'
;*-.(&'&41'&'3!3.*(' /,' .2*' &(7!*3' 2*'
!3'.2*'7*(3/4!,!-&.!/4'/,' .2*' (&!4</A' A2!-2'
04!.*3'2*&=*4'&41'*&(.2' 3'&'=!(>!4'>/1F
1*33' 3A!,.' &3'.2*' <(**0*' &41' A!.2' !4>3'
/,' >/;1' 32*' !3'.2*' 6*33*4>*(' /,' .2*' >/13'
37-!&;;5'/,' L*03'&41' *(&'&41'&--/(1!4>'
./' ;&.*(' A(!.*(3' *0-;03!=*;5' /,' .2*' ;&..*('
2*' <*&(3'.2*!(' <*2*3.3',!"/6' .2*' *413' /,'
.2*' *&(.2' *=*4'./' .2*' (!=*(' .50' &41' !4./'
.2*' 1*7.23' /,' .2*' 3*&' 3'&' 6*33*4>*('
/,' .2*' >/13' 32*' (*3*6<;*3' *(6*3' &41'
.2*(*,/(*' -&((!*3'.2*' 2*(&;13' 3.&,,' /,' .2&.'
1!=!4!.5

!3&*03' 2*',!,.2'/,'.2*' *4' ..!-' (&./(3'
&'707!;' /,' 3/-(&.*3' </(4'<*,/(*' ' CNN'
&.' 2&;-!3' !4' 0<-*&' *' ;!=*1'./' .2*'
6!11;*' /,'.2*'C.2' -*4.0(5'&.' .2*43'7(/<F
&<;5'&3'&'(*3!1*4.'&;!*4'&' 'A(!.!4>'
,/(*43!-'37**-2*3',/(' /.2*('7*/7;*'&41'>!=!4>'
!43.(0-.!/4' !4' (2*./(!-' *6/3.2*4*3'A&3'
,/(' 3*=*(&;'5*&(3'2!3'707!;' ,' .2*' 3!0.5'
,/0(' 37**-2*3' &..(!<0.*1'./' 2!6' <5' &4.!F
:0!.5' A*' 2&=*' 8<*3!1*3'3/6*' 4/.' 04!6 7/(F
.&4.' ,(&>6*4.3' *;*=*4' 37**-2*3' 1*&;!4>'
A!.2' 6&..*(3' (*;&.!4>'./' !42*(!.&4-*' &41'
.2*(*,/(*' /,' >(*&.' !6 7/(.&4-*' &3' .2(/A!4>'
;!>2.' !!7/4' ..!-' 7(!=&.*' ;&A' 4'2!3'3.5;*'
2*' 6/3.'-;/3*;5'(*3*6<;*3' 53!&3'./' A2/6'
2*' !3' !4,*(!/(' !4'4&.0(&;*;*>&4-*' A2!;*' 2*'
30(7&33*3'2!6'!4'/(&./(!-&;' 3D!;;

!3!1/63' ' 7&4!&(1'A2/' ,(/6' .2*'
<*>!44!4>'/,' .2*' U.2'-*4.0(5'A&3'<!32/7'
/,' *=!;;*' 8!4' &.!4' 'A2*4-*' 2*' !3'
-&;;*1' " ' *' 1!*1'&</0.' ? ?
-' *' 7/33*33*1' ' A!1.2' /,' (*&1!4>'
A2!-2'A&3'(*6&(D&<;*',/(' 2!3'.!6*'&41'&4'
0.(&/(1!4&(5',&-0;.5',/(' -/;;-.!4>'!4,/(F
6&.!/4' *0.'./' /*.2!03'&41' &33!1/(03'
2*'*0*(-!3*1'.2*' 6/3.'!67/(.&4.'!4,;0*4-*'
07/4'.2*'>*4*(&;' -0;.0(*' &41' ;!.*(&.0(*' /,'
.2*' !11;*' >*3' *3!1*3' A/(D3' /4'
>(&6&(' .2*/;/>5' &41' 2!3./(5'8!4-;01!4>'
& 2(/4!-;*' /,' .2*' /(;1'./' 2!3' /A4'1&5'
&41' 2!3./(!*3' /,' .2*' /.23' &41&;3' &41'
0*=!9' 2*' -/67/3*1' !4' .2*' ;&3.' 5*&(3' /,'
2!3' ;!,*' 2!3' >(*&.*3.' &41' 6/3.' !67/(.&4.'
A/(D' &4' !6 6*43*' <0.' !67*(,*-.' *4-5-;/'
73*1!-' 30(=*5' /,' &;;' D4/A;*1>*' !4' .A*4.5'
=/;06*3' *4.!.;*1' .2*' 9 : 1 '
1 " ' ,(/6' !.3' /,.*4' =*(5' -&7(!-!/03'
&41' 6&(=*;;/03'*07;&4&.!/43'/,' .2*'=&(!/03'
30<*-.3'/,'A2!-2'!.'.(*&.3' 2/0>2'!.' !3'
/4;5'&'=&3.'-/4>*(!*3'/,' -/;;*-.*1'*0-*(7.3'
1*=/!1'/,'&'3!4>;*'/(!>!4&;'!1*&'!.'!3'4*=*(F
.2*;*33'!67/(.&4.'/A!4>'./'.2*'=&(!*.5'/,'!.3'
-/4.*4.3'&41'!.3'-!.&.!/43',(/6'A(!.!4>3'4/A'
;/3.'30-2'&3'.2/3*' /,' 0*./4!03' 4/.2*('
/(D'A2!-2'!3'3!6!;&(;5'&'-/67!;&.!/4'<0.'
A&3'>(*&.;5'03*1'!4'.2*' !11;*' >*3'!3'2!3'
9'> '7 " '&'2&41</(D' /,' 4&.0(&;'
2!3./(5

!3!3' 2*' 1!=!4!.5' 6/3.' *0.*43!=*;5'
A/(32!77*1'A!.2'2*(' <(/.2*(' &41'203<&41'
3!(!3'<5'.2*' >(7.!&43'&6/4>'A2/6'32*'
(*7(*3*4.*1'.2*' ,*6!4!4*' (*-*7.!=*' &41'
7(/10-!4>'7(!4-!7;*' !4' 4&.0(*' 3' .2*'
>/11*33'/,'7(/-(*&.!/4'&41'<!(.2'2*('356</;'
A&3'.2*'-/A' 4'6/406*4.3'32*'!3'6/3.;5'
(*7(*3*4.*1'&3'/,'5/0.2,0;'&77*&(&4-*' A!.2'
&'-/A3'2/(43'/4'2*(' 2*&1' <*.A**4'.2*'
2/(43'.2*' /(<' /,' .2*' 6//4' &41' A!.2'&'
3-*7.(*' /,' ,;/A*(3'&41' .2*' *6<;*6'/,' ;!,*'
!4'2*(' 2&4138,!>' $9' *(' >(*&.*3.' .*67;*'
3./1'&.' 03!(!3'8!*' , 2' /(' </1*' /,'
3!(!39' !4' .2*' 6!13.' /,' .2*' *;.&' /,' .2*'
!;*' A2*(*'&6!13.' .2*',(0!.,0;',!*;13' .2*'
!42&<!.&4.3' A/(32!77*1' .2*' 6!>2.!*3.' >/1'
&41'>/11*33'A!.2'-*(*6/4!*3'A2!-2'.57!,!*1'
.2*' 3*&(-2'&41' 1!3-/=*(5' /,' 3!(!3'<5'2!3'
6/0(4!4>'A!,*' &,.*(' 2!3' 60(1*(' <5' 572/4'
!D*' 3!(!3'32*'A&3'&'1!=!4!.5'A2/'(0;*1'
/=*(' .2*' A/(;1'<*;/A' 4'.2*' -/0(3*'/,'.2*'
,03!/4'/,' (*;!>!/43'A2!-2'.//D' 7;&-*' 041*('
.2*' ./;*6!*3' 3!3' &41' 3!(!3' A*(*' -/4F
,/041*1'A!.2'&;' 6&44*(' /,' 3!&.!-' &41'
(**D'>/13' 4'7(/-*33'/,'.!6*' 32*' <*-&6*'
!4' 2*(' 7/A*(' .2*' 6/3.' 04!=*(3&;' /,' &;;'
>/11*33*3' (0;!4>' !4' 2*&=*4' /4' *&(.2'
&41' /4' .2*' 3*&' &41*1!4' .2*' A/(;1'<*;/A'
1*-(**!4>' ;!,*' &41' 1*&.2' 1*-!1!4>' .2*'
,&.*' /,' 6*4' &41' 1!37*43!4>'(*A&(13'&41'
704!32 6*4.3' *(' A/(32!7' 37(*&1' /=*('
(**-*' &41' &,.*(' .2*' 3*-/41' 04!-' &(

/<.&!4*1' &' ,!(6' ,//.!4>' !4' /6*' !4' 37!.*' /,' (*7*&.*1' !4.*(,*(*4-*' <5' .2*' .&.*' 4

-*(.&!4'37*-!&;' : ' /,' 3!3' A2!-2' !4' &;' .2*!(' *33*4.!&;3' A*(*' </(((/A*1',(/6'.2*' ;*03!4!&4' 653.*(!*3'/,' *6*.*(' 4'.2*3*' &;' A2/' A*(*' -&;:*1'.2*(*./' <5'.2*' >/11*33' !4' &' 1(*&6' A*(*' &16!..*1' ./' .2*' 3*;*-.'" -!(-;*' /,' .2*' A/(32!77*(3' /,' 3!3' 2*3*' 1*=/.**3' ;!D*' .2*'7(!*3.3' A*(*' (*-/>4!3*1' <5'.2*!(' ;!4*4'(/<*3'&41'.2*!('32&=*4'2*&X!3' &41'2&1'./' 1*=/.*'.2*63*;=*3'./' &4'&3-*.!-' ;!,*' (&-0;&('(*37/43*3'(*-*!=*1'!4'1(*&63' A*(*' &3' 60-2' &33/-!&.*1' A!.2' .2*' .*67;*3' /,' 3!3' &3' A!.2' .2/3*' /,' *(7!3' 8> 9' 4' (**D' &(.' .2*' >/11*33' !3' (*7(*3*4.B' &' 3!6!;&(' ./' *(&' *(' &..(!<0.*3' &(*' &' 3*(7*4.' &' -/(40-/7!&' *&(3' /,' -/(4' ;/.03' 6//4'&41'2/(43' &3' A*;;' &3' .2*' ' &' 6*.&;' (&..;*' 37*-!&;;5' *67;/5*1' !4' 2*(' 3*(=!-*' 8,!>

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8 *(;!4' O3*.6.9

.2*' 1&53'/,' .2*' 67!(*' !.' /<.&!4*1' (*-/>F 4!./!4' <5' .2*' .&.*' &41' *3.&<;!32*1' !.3*;, ' !4' &;' 7&(.3' /,' .2*' /6&4' 1/6!4!/43' 2*' &..(&-.!=*4*33' /,' .2*' 3*(=!-*' /,' 3!3' ;&5' !4' .2*' (*;!>!/03' 3&.!3,&-.!/4' A2!-2' !.' A&3' -&;F -0;&.*1'./'!430(*' 2(/0>2'&<3.!4*4-*',(/6' ,//1'&41',(/6'3*430&;'7;*&30(*3'&41'.2(/0>2' *07!&.!/43'&41'70(!,!-&.!/43'!.'7(/6!3*1'./' ;*&1'!.3'=/.&(!*3'./'3&4-.!,!-&.!/4'/,';!,*'&41' ./' &' .(0*' 7*(-*7.!/4' /,' .2*' ;!,*' 1!=!4*' 2*' (!.0&;' -/43!3.*1' !4' 7&(.' /,' &' 6/(4F !4>' &41' *,(*4!4>'3*(=!-*'./'.2*' >/1'7&(.;5' !4' &440&;' ,*3.!=&;3' -*;*<(&.*1' !4' 37(!4>' &.' .2*' (*.0(4' /,' .2*' 3*&3/4',/(' 4&=!>&.!/4' &41' &;3/' !4' .2*' ;&.*' &0.064<*,/(*' .2*' &1=*4.' /,' A!4.*(' .' .2*' ,/(6*(' ,*3.!=&;' 2*;1'/4' .2*' V.2' /,' &(-2' &41' -&;;*1' .2*' 32!7' /,' 3!3' #' ' " 1 ' !4' (*-/'" G4!./!4' /,' 2*(' <*!4>' .2*' 7&.(/4*33' /,' 4&=!F >&.!/4' &41'!4=*4.(*33' /,' .2*'3&!;' .2*'7*/7;*' !4' >*4*(&;' A!.2' .2*' 1*=/.**3' &41'7(!*3.3' /,' 3!3' A*4.' !4' 3/;*64' 7(/-*33!/4' 1/A4' ./' .2*' 3*&32/(*' A2*(*' &' 3&!;!4>' =*33*;' 7&!4.*1'!4'.2*' >57.!&4' 6&44*('&41';&1*4' =!.2' 37!-*3' A&3' -/66!..*1'./' .2*' 3*&' f 70;*!03' *.'O!' R"$U' *37' $$" !(6!-03' &.*(403 8# A' (/ ' *^K'!g' 2*' /.2*(' ,*&3.' A&3' *6<;*6&.!-' /,' .2*' >(!*,' /,' 3!3' &.' 2*(' ;/33' &41' 2*('K/5' &.' ,!41!4>' &>&!4' 2*(' 203<&41' 3!(!3' &41' 2*(' 3/4' /(03' *3!1*3'.2*3*'7/70;&(',*&3.3'.2*(*'A*(*'&;3/

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36*4 ' '1&0>2.*('/,'8 1!703' ,3"-(2.`3' 2*' ,/0(.2' &6/4>' .2*' 6.' ..!-' (&./(3'A&3'</6'&.' .2*43' ' 'C ?' *' A&3'.2*' 3/4' /,' 2><1/(03'.2*'A*&;.25' 7(/7(!*./('/,' &',;0.*' 6&40,&-./(5'A2/'7(/F =!1*1',/('2!3'3/43'(*-*!=!4>'&'-&(*,0;'*10-&F .!/4' --/(1!4>;5'2*' 2&1'.2*' &1=&4.&>*'/,

<*!4> !43.(0-.*1 <5 (/1!-03 (/.!> (&3 2*(&6 4*3 &41 8&</=* &;;9 /(>;&3" 2!3 -2&(&-.*(A&3&;3/ 6/0;1*1<5.2* !4,;0*4-* /, /-(&.*3&;.2/0>2 2* 4*=*(<*;/4>*1 ./ .2* 6/(* (*3.(!-.*1-!(-;* /, 2!3 707!;3

&32,0;4*33 &41 & A*&D =/!-* 7(*=*4.*1 2!6 ,(/6 .&D!4> 7&(. !4 70<;!- ;!,* ,.*(.2* ,&;; /, .2* 2!(.5 &3 2!3 ,&.2*(2&1 ;/3. 2!3 6*&43 !4 .2* -&;&6!./03 5*&(3 .2&. -;/3*1 .2* *;/7/44*3!&4 &(2* .0(4*1 2!3 &..*4.!/4 ./ -/67/3!4> ,/(*43!-37**-2*3 ,/(/.2*(3 ,.*(2&=!4> .&0>2. (2*./(!- &. 2!/3 f7/33!<;5 &</0. CNC *2* (*F .0(4*1 ./ .2*43 !4 CN &41 .2*(* /7*4*1 &(*>0;&(3-2//;/,(2*./(!-&</0. T@ . A&3 ;&(>*;5 &..*41*1 <5 </.2 .2*4!&43 &41 4/4" .2*4!&43 &41 <(/0>2. 2!6 !4 -/43!1*(&<;* A*&;.2 2* ./.&;4067<*(/, 2!3 707!;3 2&3 <**4 >!=*4 &. /4* 2041(*1 !4-;01!4> !6 .2 03 .2* 3/4 /, "4"4 .2* /(&./(3 33*03 57*(;1* &41 5-0(>03 &41 .2* 2!3./(!&43 72 (03&41 2*/7/6703 3/-(&.*3 &;3/ 2&1 ,(!*41;5 (*;&.!/43 A!.2 ,/(*!>4 7(!4-*3 *37*-!&;;5 A!.2 =&> (&3 /, B(03 &41 13 3/4 ;-";*3 A2/;/&1*1 2!6 A!.2 ,&=/0(3 *D*7. 2!63*;, -/6F 7;*.*;5&;//,(/6 &45 7*(3/4&;32&(* !4 .2* 70<;!-;!,* /, 2!3 1&5 5*. 2* &..*67.*1./ !4,;0*4-* .2* 7/;!.!-&;A/(;1 4/. /4;5 A!.2F !4 .2* 4&((/A </0413 /, 2!3 4&.!=* ;&41 <0.&;3/.2(/0>2/0. .2* A2/;* /, (**-* <5 &3*(!*3 /, (2*./(!-&;1*-;&6&.!/43 4/. !4F .*41*1./ <* 1*;!=*(*1 <0./4;5./ <* (*&1 2!3 2* 1!1 !4 .2* ,!(3.7;&-* !4 2!3 , " 1: A2!-2 2* 70<;!32*1 !4 RN F %&,.*(37*41!4>.*4 /(8&--/(1!4>./ &4/.2*(&--/04.9 &3 6&45 &3 ,!,.**4 5*&(3 /=*(!.3 7(*7&(&.!/4 2!3 !3 &D!41/,*3.&;/(&.!/4 *0;/>!3!4>.2* 3*(=!-*3/, .2*43./ (**-* *02/(.!4>.2* 7&(.&43 7*&-*,0;;5./ 32&(* .2* 307(*6&-5 A!.2 .2*43 &41 -&;;!4>/4 .2* (**D3./ ;&5 &3!1*&;; !4.*(4&; 1!33*4F 3!/43 &41 &..&-D .2* <&(<&(!&43 A!.2 .2*!(04!.*1!3.(*4>.2 4 .2* 4!4*.!*.2 5*&(/,2!3 &>* !4 & 1!3-/0(3* &11(*33*1 ./ 2!;!7 !4 C? %2* *41*&=/0(3./!410-* .2&. 6/4F &(-2./-&((5/0.2!3 7/;!-5<5(*-/4-!;!4>&;; .2* (**D3./ /4* &4/.2*(&41;*&1!4> .2*!(04!.*1,/(-*3 &>&!43. .2* *(3!&43 .2*(1!3-/0(3*3 (*;&.*./ .2* !4.*(4&; 7/;!.!-3/, .2*43 203 !4 .2* 1 2* (*-/66*413 2!3,*;;/A-!.!Q*43./>*.(!1/, .2* *0!3.!4> A*&D4*33*3 !4 .2*!(7/;!.!-&; %-/43.!.0.!/4<5(*.0(4!4>./ .2* 1*6/-(&-5 &3 ,/041*1 <5 /;/4 &41 (*-/43.!.0.*1 <5 ;!3.2*4*3 &41 <5 (*!43.&.!4> .2* (*/F 7&>03 &3 .2* 307(*6* .(!<04&; /, -*43/(F 32!7 /=*(70<;!-1*-/06 &41 6/(&;!.5 *(*.&!4*1 2!3 6*4.&; &41 </1!;5 7/A*(3 04F !67&!(*1 ./ &4 &1=&4-*1 &>* &41 !4 2!+ 4!4*.5"*!>2.2 5*&(-/67;*.*1 .2* , " 2 " &1!3-/0(3*!4 7(&!3*/, .2*43 *;!=*1./ 3** .2*./.&;A(*-D/,&;;2!3 2/7*3 /,/(&(*>*4*(&./,/ (**-* &41 1!*1 - R&,*A 1&53&,.*(.2* <&..;*/, 23*("4`& *!3 3&!1 ./ 2&=* 1!*1/, =/;04.&(5 3.&(F =&.!/4 /A!4>./ 2!3 1*37&!(&.2* 1/A4F ,&;;/, (**D;!<*(.5 f<0. .2!3 &--/04./, 2!3 1*&.2 ,&6!;!&(!3*1 <5 !;./4 !4 2!3" ,!,.2 4>;!32 3/44*. 6 03. <* -/43!1*(*1 &3" 1/0<.,0;g

2*(* A*(* 3!O.5 -/67/3!.!/43 <*&(!4> 2!3 4&6* D4/A4./ &4.!:0!.5 <0.;*33 .2&4 2&;,.2&.406<*(A*(* -/43!1*(*1 >*40!4*= ,.2* .A*4.5"/4* A2!-2 2&=* -/6* 1/A4 ./6%.2* ,!(3.2* ; 5 " " !3 /,.*4(*>&(1*1 &3 70(!/03 f<0.2*(* !3 4/ (*&3/4./ 1/0<.2* >*40!4*4*33 /, 4!4* /, .2* .*4 /.2*(; .!3 /4;5.2* ;*..*(7(*,!O*1./ .2* 4!4* !4 .2* /;1*(*1!.!/43 .2&. !3 4/. >*40!4* 2&=!4> <**4 (*&;;5 A(!..*4 <5 2*/725;&-. !6/-&..& *&(;5 !4 .2* U.2 -*4.0(5 - 7 , .2* 37**-2*3 3!O &(*,/(*43!-/(&.!/43A(!..*4./ <* 1*;!=*(*1 <5*.2*(3 .2* (*3. &(* 1*-;&6&.!/43-2!*,;5 /4 7/;!.!-&; 30<!(*-.3 5 2!3 6&3.*(5 /, 3.5;* 3/-(&.*3 2&1 &,&("(*&-2!4>!4,;0*4-* /4 &;; 30<3*:0*4. (**D 7(/3* A2!-2 !3 4/.-/4,!4*1./ /(&./(!-&;-/67/3!./4&;/4* !3 -2!*,3.(*4>.2 ;!*3 !4 & -&(*,0;-2/!-* /, *07(*33!/4 4/. /4;5 !4 2!3 =/-&<0;&(5 <0. &;3/ !4 .2* (25.26!-&; ,/(6&.!/4 /, 2!3 ,;/A!4>7*(!/13 !4 & 3D!;,0;03* /, .2* ,!>4(*3 /, 37**-2 &41 !4 &;; .2&. ;*413 *072/45./ ;&4>0&>* f =*4 !4 &.!4 .2* /(&./(!-&;7(/3* /, !-*(/ !3 /4 !.3 ,/(6&; 3!1* ,/041*1-2!*,;5 /4 .2&. /, 3/-(&.*3 /1*(4;!.*(&(5 7(<3* 2&3 !4 !.3 .0(4 <**4 6&!4;5 6/1*;;*1 /4 .2&./, !-*(/ &41 .203 .2* !4,;0*4-* /, 3/-(&.*3 2&3 *410(*1 ./ .2* 7(*3*4.5 1&5 9

1. ;!&8H*:0&;!.5 !4 .&O &41 .(!<0.* I9" .2*43 .2* 7/3!.!/4/, 7&(.!&; *:0&;!.5 A!.2 .2* -!.!Q*43 A2!-2 A&3 >(&4.*1./ .2* 6/(* 1*3*(=!4> /, .2* #

3.26!&4 &6*3 4* /, .2* ,/0(* >(*&. 4&.!/4&; ,*3.!=&;3/, .2* (**D3 2*;1/4 .2* 3.2603/, /(!4.2 !4 &>(/=* /, 7!4* (**3 3&-(*1./ <3*!1/4 4*&(.2* 32(!4*3/, .2* 3.26!&4 /3*!1/4 &41/, /(* `;!-*(."3 (/6 RT .2*5 A*(* 2*;1 !4 .2* ,!(3.6/4.2 /,37(!4> !4 .2* 3*-/41 &41 ,/0(.2 5*&(3/, *&-2 ;567!&1 --/(1!4>./ ;*>*41 .2* 3.26!&4 &6*3 A*(* /(!>!4&;;5 ,04*(&; >&6*3 !4 6*6/(5/, * -*(.*3 & &4/.2*(.(&1!.!/4 (*;&.*3 .2&. .2*5 A*(* *3.&<;!32*1 <5 2*3*03 *!.2*(!4 2/4/0(/, /3*!1/4 /(!4 -/66*6/(&.!/4 /, 2!3 =!*"

./(5 /=*(-!(/4 &41 !4!3 4 &45 *&3* .2* .2*4!&43 A*(* 37*-!&;;5 !4.*(*3.*1 !4 .2* ,*3.!=&; ,(/6 .2* *&(;!*3. .!6*3 . A&3 &;;*>*1 .2&. ,(/6 .2* 1&53 /, 2*3*03 1/A4A&(13 .2*5 2&1 A2&. A&3 -&;;*1 .2* : .2* (!>2. / , /--075!4> .2* 6/3. 7(/6!4*4. 3*&.3 &. .2* >&6*3 &41 !4 &-F -/(1&4-* A!.2 & ;&A &..(!<0.*1 ./ /;/4 .2*5 7(*3*4.*1 ./ .2/3* /, .2*!(-!.!Q*43 A2/ A*(* =!-./(3 !4 .2* -/4.*3.3 & (*A&(1

/(!4.2 . ' C?9 !. A&3 (*3./(*1 ./ .2&. -!.5 2* -/4.*3.3 !4-;01*1 >56 4&3.!- *O*(-!3*3 2/(3*"(&-*3 &41 -/67*.!.!/43 !4 603!- 2* .A/ ,/(6*(1!,,*(*1 !4 4/ *33*4.!&; A&5 ,(/6 .2* ;567!&4 8 &6*3 # * !4 .2* .2!(1 <*3!1*3 603!-!&43 7/*.3 /, *!.2*(3*O -/4.*41*1 ,/(.2* 7(!Q* *F 3!1*3 .2* -03./6&(5 7&;6 .2* 7(!Q* !4 !41&(3 .!6* -/43!3.*1 /, & A(*&.2 /, 1(5 " " f/,.*4 .(&43;&.*1 H 7&(3;*5 I <0.

' ' /(' & ' & H

2* 3.26!&4 3.& !46 &41 3&-(*1 !4/;/34(* -/4.&!4!4> .2* .*67;*3 /, /3*!1/4 8 *7.04*9 &41 *;!-*(.*3 8 &;A0/49 ;.*(*&;-*3 (&=*;3!4 .2* /(3& /; !!! 7!

&6/04.!4> ./ $NN (f 2* /4;5 /--&3!/4 A2*4 /-(&.*3 A&3 &<3*4. ,(/6 .2*43 *0-*7. A!.2 .2* &(65 A&3 ./ &.F .*41 .2!3 ,*3.!=&; h 2* !42&<!.&4.3 /, ;!3 A*(* -/67;*.*;5 *0-;01*1 ,(/6 .2* >&6*3 <*!4> 1*<&((*1 ,(/6 *!.2*(3*41!4> -/6F 7*.!./(3 /(,*3.&; *4=/53 2* /(!4.2!&43 2&1 .2* 7(*3!1*4-5 A2!-2 A&3 .(&43,*((*1 ./ .2* !-5<4!&43 &,.*(.2* 1*3.(0-.!/4 /, /(!4.2 . ($C?9 <0. &. .2* (*<0!;1!4> /,

6/(* 7(/<&<;5 !1*4.!-&; A!.2 .2* P A!;1 -*;*(5 I 1 2* " " A&3 & 356 4/; / , ,04*(&; >&6*3g , .*(.2*a 1*3.(0-.!/4 /, /(!4.2 & -(/A4 /, 7!4*. ;*&=*3 A&3 30<3.!.0.*1 ,/(!. 2* >&6*3 ;/4> -/4.!40*1 ./ <* 2*;1 *=*4 041*(.2* /6&4 67!(* W$;0.&(-2 + " @? &41 : = $" g .. 41((!& 2* /6&4 .*(6 ,/(8 9 -/6F 7*41!/03 ;!3.3 /, .2* 4&6*3 &41 1!3.*4-*3

/,'.2*'1!,,*(*4.'3.&.!/43'/4'.2*'70<;!-'(/&13'&,.*('.2*'6&44*('/,'/0('(/&1"</!D3'#2'"'"'/('"'/('8!9'-2&("'./>(&72!-'(*7(*3*4.&.!/43'3!6!;&('./'/0('.(&=*;;!4>'6&73'#"'',.2*',/(6*('D!41'A*'2&=*<&3!3'/,'A2!-2'<*;/4>3'./'.2*'.!6*'/,'".2*'*67*(/('4./4!403'&(&-&;;&'<0.'.2*'*1!.!/4'A2!-2'2&3'-/6*'1/A4'./'03'1&.*3',(/6'.2*'<*>!44!4>'/,'.2*'C.2'-*4.0(5'2*5'-/4.&!4';!3.3'/,'(/0.*3'<5';&41'&41'3*&'!4'.2*'/6&4'*67!(*8@9'2*'"'"'1"'/('::'"'-%.2*'(/0.*'/,'&7!;>(!6&>*',(/6'0(1;>;&8/(1*&009'./'*(03&;*68 9'2*'"'"'-"'&4'&<F3.(&-./,'.2*'*(3!&4'*07*1!.!/4'/,';*OF&41*('.2*'(*&.'1(&A4'07'6&!4;5',(/6'((!&4',/('.2*'*07*1!.!/4'/,'.2*'*67*(/('/43.&4.!43'&>&!43.'.2*'*(3!&43'8'CN" CV9',.2*'/.2*('D!41'/,'!.!4*(&(!*3'!4'.2*',/(6'/,'6&73'A*'2&=*'&37*-!6*4'!4'.2*'*0.!4>*('',"1"'4/A'!4'!*44&'.'(*-*!=*1'!.3'4&6*',(/6'!.3',/(6*('7/33*33/('^/4(&1'*0.!4>*('&'-/04F-!;;/('/,'0>3<0(>'.'A&3'7&!4.*1'&.'^/;6&('!4'$@?V'/4'.2*'6/1*;'/,'&4'/(!>!4&;'6&7'A2!-2'1&.*3'<&-D'./'.2*'6!11;*'/,'.2*'(1'-*4.0(5'-'.'-/43!3.3'/,'.A*;=*'<(/&1'3.(!73'/,'7&(-26*4.'/4'A2!-2'&(*'1*;!4*&.*1'&;;'.2/3*'7&(.3'/,'.2*'A/(;1'A2!-2'A*(*'D4/A4'./'.2*'/6&43\'/4;5.2*'7!*-*3'A2!-2'32/0;1'-/4.&!4'7&!4'&41'(!.&!4'&(*';/3.'fA!.2'.2*'*0-*7.!/4'/,'7&(./,'^*4.'g'.'!3'1!37(/7/(.!/4&.*;5'*;/4>&.*1'!4'.2*'1!(*-.!/4'/,'*&3.'./'A*3.'.2*'(&.!/'/,'!.3'2*!>2.'./'!.3'<(*&1.2'<*!4>'$W@$'2*'1!3.&4-*3',(/6'./A4'./'./A4'&(*'6&(D*1'/4';!4*3'(044!4>',(/6'*&3.'./'A*3.'&41'.2*'(*;&.!=*'3!Q*3'/,'.2*'./A43'!41!-&.*1'<5'1!3.!4-.!=*'6&(D3'f'-2*&7'&41'*0-*;;*4.'A&3'70<;!32*1'<5'&!*(''/,'&5*43<4(>'!4'$RRRg'!.K,;43'&:'',!//'('(;0;03''(')0\Z4'/4'/,'2;>5&3'8/('/,'(*39'&41'D!4>'/,'.2*'&7!.2&*'5'!&'2*'A&3'.2*',&.2*('/,';(;.2 03'8A2/'&--/(1!4>'./'/6*('2/A*=*('A&3'&3/4'/,'L*039'*'&..*67.*1'./'A!.22/;1',(/6'2!3',&.2*("!4"';&A'*;4*43'.2*'<(!1&;'>!,.3'2*'2&1'7(/F6!3*1'*;/4*03'&--/(1!4>;5'1*.&!4*1'.2*'2/(3*3'/,'0!/4'2*';&..*('!4=!.*1'2!6'./'2!3'2/03*'&41'.2(*A'2!6'!4./'&'7!.',!;;*1'A!.2',!(*'2*4'L*03'4/./4;5'70(!,!*1'2!6',(/6'.2!3'60(1*('<0.'*5*4'!4=!.*1'2!6'./'.2*'.&<;*'/,'.2*'>/13'2*'<*-&6*'&((/>&4.'&41'!43/;*4.'&41'*=*4'3/0>2.'./'A!4'.2*';/=*'/,'*(&'L*03'.2*(*07/4',/(6*1'/,'.2*'-;/013'&'72&4./6'(*3*6<;!4>'*(&'&41'<5'!.'0!/4'<*-&6*'.2*',&.2*('/,'.2*'*4F.&0(3'4'2!3'</&3.!4>'/,'.2*',&=/0(3'2*'!6&>!4*1'.2*'>/11*33'./'2&=*'>(&4.*1'2!6'L*03'-&03*1'2!6'./'<*'704!32*1',/('.2!3'-(!6*'<5'<*!4>',&3.*4*1'./'&A2**;'/4'A2!-2'2*'A&3'./'.0(4'!4'.*((/('/('*=*(F6/(*!4'.2*'A/(;1'<*;/A

&403''>/1'7*-0;!&('./'.2*'.&;!&43'A!.2'4/'-/((*37/41!4>'1!=!4!.5'&6/4>'.2*'(**D3'=*4'.2*'&4-!*4.3'A*(*'<5'4/'6*&43'-;*&('&3'./'2!3'37*-!&;'3!>4!,!-&4-*"2*'A&3'2/A*=*('(*>&(1*1'&3'/4*'/,'.2*'/;1*3.'/,'>/13'4'/6*'.2*'D!4>'&41'!4';&.*('.!6*3'.2*'*=*(5'3&-(!,!-*'2*'A&3'(*6*6<*(1',!(3.'!4'*=*(B'7(&5*('2*'A&3'.2*',!(3.'!4=/D*1'<*!4>'6*4.!/4*1'*=*4'<*,/(*'07!.*('4'.2*'3/4>3'/,'.2*'&!4'2*'A&3'-&;;*1'.2*'>//1'-(*&./('&41'.2*'>/1'/,'>/13"'2*'!3'*;3*A2*(*'4&6*1'.2*'/;1*3.'/,'.2*'>/13'&41'.2*'<*>!44!4>'/,'&;'.2!4>3'.'A/0;1'&7F7*&('.2&.'/(!>!4&;;5'2*'A&3'&'>/1'/,'.2*';!>2.'&41'/,'.2*'304'A2/'/7*4*1'.2*'>&.*3'/,'2*&=*4'/4'>/!4>',/(.2'!4'.2*'6/(4!4>'&41'-;/3*1'.2*6'/4'(*.0(4!4>'&.'*=*4!4>'4'-/0(3*'/,'.!6*'2*'<*-&6*'.2*'>/1'/,'&;;>/!4>'/0.'&41'-/6!4>'!4'./A2/6'&;'7;&-*3'/,'*4.(&4-*'&41'7&33&>*'&;;'1//(3'&41'>&.*3'A*(*'2/;5'4'/6*'&;;'1//(3'&41'-/=*(*1'7&33&>*3'A*(*'30>>*3.!=*'/,'2!3'4&6*'2*',/(6*('A*(*'-&;;*1'"'*'/=*('.2*'&;.*('-(2*3'A2!-2'37&44*1'.2*'3.(**.3'A*(*'-&;;*1"'&'.*(6'7*(2&73'356</;!-&;'/,'.2*'=&0;'/,'2*&=*4'&45'/,'.2*3*'A*(*'07(*33;5'1*1!-&.*1'./'2!6'*37*-!&;;5'.2/3*'A2!-2'A*(*'3!.0&.*1'!4'6&(D*.3'&41',(*:0*4.*1'3.(**.3'/('&.'-(/33F(/&13'4'.2!3'-&3*'.2*'5'A*('(*7(*3*4.*1'&3'/1/(4*1'A!.2'2!3'!6&>*'&41'.2*'1/0<;5'&(-2'<*-&6*'&.*67;*'A!.2'.A/'1//(3'/('.2*'.A/'1/0<;*'&(-2*3'&'.*67;*'A!.2',/0('*'A&3'>*4*F(&;;5'(*7(*3*4.*1'&3'7/(.*('A!.2'&'3.&,'&41'&'D*5'!4'2!3'2&413'&41'A!.2'.A/'<*&(1*1',&-*3'7;&-*1'<&-D'./'<&-D'&41';//DF!4>'!4'/77/3!.*'1!(*-.!/43'#'-0.9'*'!3'&;3'.2*'>/1'/,'*4.(&4-*'!4./'&'4*A'1!=!3!/4

%/' .!6*' &!1' A&3' .2*(*,/(*' 3&!4.*1' *=*(5' .4/(4!4>' &3' .2*' >/1' /,' .2*' <(*&D!4>' 1&5' B# ' " " # .2*' <*>!44!4>3' /,' &;;' .2*' 6/4.23' 8.2*' -&;*413' A*(*' 3&-(*1' ./' 2!6' &3' A*;;' &3' ./' 04/" &41' &6/4>' .2*' 6/4.23' .2*',!(3.'/,' .2*' 4&.0(&;'5*&(' A2!-2' 1*(!=*1',(/6'2!6'!.3'4&6*8 " < ' /(' 3&-(!,!-*3' /4' .2*' -&;*413' .A*;=*' &;.&(3' A*(*' G1*1!-&.*1'./'2!6 2!3'-2!*',*3.!=&;'2/A*=*(' A&3' .2*' $3.'/,' &40&(5'*37*-!&;;5'&'!4' $V' .2!3' A&3' 6&1*' .2*' /,,!-!&;'<*>!44!4>'/,' .2*' 4*A'5*&(' 4' .2!3'1&5'2*' A&3'!4=/D*1' &3' .2*' >/1' /,' >//1' <*>!44!4>3' &41' &3' 2/4/0(*1'A!.2' -&D*3'/,'4.*&;' -&;;*1' " ' %*=*(5'1!3.0(<&4-*' *=*(5':0&((*;' A&3' -&(*F ,0;;5' &=/!1*1' &41' 4/' 6/(*' A/(D' @ ' 1/4*' .2&4' A&3' 4*-*33&(5'./' 6&D*'&;0-D5'<*>!4F 4!4>'/,' .2*'1&!;5'<03!4*33'/,' .2*'5*&(" 60.0&;' B//1' A!32*3' A*(*' *0-2&4>*1' &41' 7*/7;*' 6&1*'7(*3*4.*' /,' 3A**.3' ./'/4*'&4/.2*(' &3' &

9 + ' '

X 0',' /6&0'/39

%>//1'/6*4' .2&.' .2*' 4*A'5*&(' 6!>2.' <(!4>' 4/.2!4>' <0.' .2&.' A2!-2' A&3' 3A**.' &41' 7;*&3&4.' !4' !.3' .(&!4' & ' $ 9' 2*' 4*A;5'-2/3*4'-/430;3'&41' .2*' /.2*(' /,,!-!&;3' ./>*.2*(' A!.2' .2*' 3*4&.*' &41' .2*' D4!>2.3' A*4.'07' ./' .2*' &7!./;' ./' /,,*(' ./' 07!.*(' &' ,!*3.&;'3&-(!,!-*' /,'A2!.*'-&..;*' &41' ./'7(&5',/(' G.2*' 3&,*.5' /,' .2*' .&.*' 41*(' .2*' 67!(*' .2*' (1' /,' &40&(5'A&3'30<3.!.0.*1' &3' .2*' %1&5,/(' /,,*(!4>' =/A3',/(' .2*' 7(/37*(!.5' /,' .2*' !67*(!&;' 2/03*' 2*' /(!>!4' /,' &;;' /(F >&4!-';!,*'&41'*37*-!&;;5'&;'206&4';!,*'A&3' (*,*((*1'./' 2!6" 2*' &3' .2*(*,/(*' -&;;*1' Y " ' 83/A*(9' (/6' 2!6' 37(&4>' &;;' A*;;3'(!=*(3'./1'3.(*&63*'!4' .2!3' (*;&.!74' 2*' A&3' -&;;*1' .2*' 37/03*' /,' 0.0(4&' .2*' >/11*33' /,'37(!4>3'&41',&.2*(' /,' /4.03' .2*' >/1'/,',/04.&!43' 3' .2*'>/1'/,'-/6!4>' &41' >/!4>' &41' /,' .(&,,!-' 2*' 2&1' 7/A*(' 4/.' /4;5' /4' ;&41' <0.' &;3/' /4' 3*&' 2*' A&3' .2*(*,/(*

1*3-(!<*1' &3' .2*' 203<&41' /,' .2*' 3*&">/11*33' *4;;!&' &41' &3' .2*' 1!3-/=*(*(' /,' .2*' &(.' /,' 32!7<0!;1!4>' /(' .2!3' (*&3/4' .2*' /6&4' &3' </(*' .2*' !67(*33!/4' /,' &' 32!7' /4' .2*' /<=*(3*' /,' .2*' 2*&1' /,' &403' # ' " ' ,!>' U9' !3' &0.2/(!.5' *0.*41*1' &3' 60-2' /=*(' A&(' &3' /=*(' 7*&-*' 4' -/44*0!/4' A!.2' A&(' 2*' A&3' D4/A4' !4' .2*' ,&4*',/041*1' <5' 06&' 4*&(' .2*' &4-!*4.' /(06' &3' " ' T) " ' 2*4' A&(' A&3' 1*-;&(*1' .2*' -/430;' /7*4*1' .2*' 1/0<;*' 1//(3' /,' .2!3' 3&4-.0&(5'&41'3066/4*1'.2*' /6&4'5/0.23' -&7&<;*' /,' <*&(!4>' &(63' ./' 6&(-2' .2(/0>2' !.'A!.2'2!6' 3' ;/4>'&3' A&(' -/4.!40*1' .2*' 1//(3.3./1'/7*4'<0.'/4' .2*' 1*-;&(&.!/4' /,' 7*&-*' .2*5'A*(*' -;/3*1' (/6' .2*' .!6*' /,' 06&' ./' .2*' 5*&(' /,' .2*' <!(.2' /,' 2(!3.' .2!3' 2&77*4*1' /4' ,/0(' /--&3!/43' 4;5' &41' .A!-*' !4' .2*' (*!>4' /,' 0>03.03' 2!;*' & 03' &77*&(3'&3' .2*' 6/3.' &4-!*4.' /,' .2*' /6&4'>/13'2*'!3'&.' .2*' 3&6*' .!6*' 4&6*1' &3' .2*' 6/3.' &4-!*4.' D!4>' /,' .2*' ;&41' A2/' 1A*;.' 07/4' .2*' &4;-..;06' 4' .2*' (!>2.' <&4D' /,' .2*' !<*(' &41' *(*-.*1'&'.*67;*' ./' .2*' >/13' &41' >&=*' &',(!*41;5'(*-*7.!/4' ./' &.0(4' 4' =*(5';&.*' .!6*3' 2*' !3' (*7(*F 3*4.*1' A!.2' &' <*&(1*1' &41' &4' 04<*&(1*1' ,&-*' &41' !43.*&1' /,' 2!3' 2&=!4>' .2*' 030&;' &..(!<0.*3'/,' .2*' D*5' &41' 3.&,,' .2*' ,!4>*(3' /,' 2!3' (!>2.' 2&41' *02!<!.' .2*' 406<*(' RNN' 8 9' &41' .2/3*' /,' 2!3' ;*,.' 2&41' .2*' 406<*(' /,' .2*' (*6&!4!4>' 1&53' /,' .2*' 5*&(' . # + 3"4' 2*' 3/4' /,' 3"4' &41' ;*&1*(' /,' .2*' (>/4&0.3' # ' 203<&41' /,' *1*& *!04;06' 2*',!(3.'<(*&D,&3.'&6/4>' .2*' /6&43' # ' 0 ' 4' " ' $ " ' .2*',&3.'/,' *(*3' ' " *A*;;*(5' ' ' /-&3.&' ' A ' /(1&4*3' 4' ;&4!&4' <5' <!(.2' &41' 7(/<&<;5'<!32/7'/,' (./4&' *' A(/.*' .A/' 2!3./(!-&;' A/(D3 8 9' &' -/67*41!06' /,' 4!=*(3&;' !3./(5'1/A4' ./' VV@ " 8@9' &4' &<3.(&-.' /,' &33!/1/(03' !3./(5' /,' .2*' /.23' #5' 7' 6 % A2!-2' .2/0>2' 1/4*' !4' &' -0(3/(5' &41' 043D!;,0;' 6&44*(' !3' 4*=*(.2*;*33' /,' >(*&.'=&;0*' A!4>' ./' .2*' ;/33' /,' .2*' /(!>!4&;' /(D /3*7203' #A ' /(4' &.' *(03&;*6' ' U' /,' &' (*37*-.&<;*' 7(!*3.;5' ,&6!;5' *' (*-*!=*1' &' 3-2/;&(;5'*10-&.!/4' &41' !4' ? ' A*4.' ./' /6*' A2*(*' 2*' >&!4*1' .2*' ,&=/0(' /,' /776&' .2*' A!,*' /,' *(/' ,.*(' 2&=!4>' (*.0(4*1' ./' 2!3' 4&.!=*' ;&41' 2*' *41*&=/0(*1'!4'=&!4'./'-2*-D'.2*'(*=/;.' /,'2!3'/A4'7*/7;*' &>&!43.'.2*' /6&43' .2*'(*F 07/4' 2*' 2!6 *;,'K/!4*1' .2*' (*<*;;!/4' <0.' A2!;*' !4' -/66&41' /,' &;!·**' A&3' .&D*4' 7(!3/4*(' <5' .2*' /6&43' *' A&3' ,(**1

(!=&.*' &-.!/43' A*(*' /,.*4' 1*-!1*1' <5' 5 ' /(' &(<!.(&./(3' # ' 7 7 !' &4' !67/(.&4.' </15 ' /(' .2*' -/4=*4!*4-*' /,' 7*!"3/43',!=!4>' /0.3!1*' .2*43B' .2!(.5' 8!4' ;&.*(' .!6*3' ,/(.59' ;/-&,' 6&>!3.(&.*3' A*(*' &77/!4.*1' <5' ;/.' A2/3*' <03!4*33' !.' A&3' ./' >/' ,(/6' 7;&-*' ./' 7;&-*' &41' 1*-!1*' 7*..5' -&3*3' /,' 1*<.' /(' 1&6&>*' /(' &33&0;.' 4' -&3*3' /,n' 60(1*(' .2*' K0(!31!-.!/4' <*;/4>*1' ./' .2*' 9 (' !4' -*(.&!4' /.2*(' -&3*3' ./' .2*' *4&.*' .2*' 9 ' .2*' 1:' .2*' (" ' &41' .2*' 9 "' # ' / ' 2*' >(*&.*(' 406<*(' /,' -&3*3' -&6*' <*,/(*' .2*' -/0(.' /,' .2*' '# ' / A: 2*' 6/3.' >*4*(&;' 4&6*' ,/(' &' 70<;!-' -2&(>*' A&3' 1 < ' /(' &' 3.&.*6*4.' !4' A(!.!4>' 2*' 1 (' A&3' /4;5' (*3/(.*1' ./' !4' -&3*3' /,' /,,*4-*3' &;(*&15' (*-/>4!3*1' <5' ;&A' &41' A&3' &;A&53' </0>2.' <*,/(*' &' -/0(.' /,' ;&A' 4*=*(' <*,/(*' &' 7/;!.!-&;' </15' 30-2' &3' .2*' 3*4&.*' /(' 70<;!-' &33*6<;5' 4' .2*' 37*-!&;' ,/(63' /,' 70<;!-' 7(/3*-0.!/4' ' ' ' # ' A ' ' 53 '830!.9' A&3' .2*' .*(6' ,/(' &' -!=!;' 7(/-*33' 41*(' </.2' ,/(63' /,' &-.!/4' .2*' 7(/-**1!4>3' A*(*' =*(5' 60-2' .2*' 3&6*' 0-*7.' !4' -*(.&!4' -&3*3' &,,*-.!4>' .2*' (*;!>!/03' 653.*(!*3' .2*5' A*(*' 70<;!-' &41' !4=/;=*1' &' >(*&.' 6&45' ,/(6&;!.!*3' 5' (&5' /,' !4.(/10-!4>' 2!3' -&3*' .2*' 7(/3*-0./(' &77;!*1' ./' .2*' 7(*3!1*4.' /,' .2*' -/0(.' A2/' ,!0*1' .2*' 1&.*' ,/(' .2*' 7(*;!6!4&(5' !4=*3.!F >&.!/4' 2*' 3066/43' A&3' 6&1*' <5' .2*' 7(/3*-0./(' !4' &' 70<;!-' 7;&-*' &41' !4' .2*' 7(*3*4-*' /,' A!.4*33*3' ;!*43' A*(*' /<;!>*1' ./' >!=*' 3*-0(!.5' ,/(' .2*!(' &77*&(&4-*' -!.!0*43' A*(*' 4/.'*0-*7.'!4'-&3*' /,' 1 1 " - '/(' "1 ' 41'!4'.2*3*'-&3*3' &'37*-!&;'3066/43' A&3' 3/6*.!6*3' 1!37*43*1' A!.2' &41' .2*' &--03*1' 6!>2.' <*' !66*F 1!&.*;5' &((*3.*1' 2*' -2&(>*' 2&=!4>' <**4' 2&41*1' !4' .2*' 7(*3!1!4>' K01>*' 1*-!1*1' A2*4' .2*' 1&5' 6*4.!/4*1' !4' .2*' 3066/43' -&6*' (/041' A2*.2*(' 2*' 32/0;1' &16!.' !.' /(' 4/.' &(!/03' (*&3/43' 6!>2.' ;*&1' 2!6' ./' 1!36!33' !.' .2*' 4/4"&77*&(&4-*' /,' .2*' &--03*1' .2*(*' <*!4>' 4/' 30,! -!*4.' *=!1*4-*' ./' 32/A' .2&.' 2*' 2&1' <**4' 3066/4*1" /(' !,' .2*' &--03*(' &77*&(*1' /4' .2*' A2/;*' 4/.' K03.!,!*1' !4' <(!4>!4>' .2*' -2&(>*' /(' !,' .2*' ,/(63' A*(*' 4/.' 10;5' /<3*(=*1' ,' .2*' -2&(>*' A*(*' &16!..*1' !.' A&3' 70<;!-;5' 7/3.*1' 07' /4' &'.&<;*.' !4' .2*' 4*!>2</0(2//1' /,' .2*' -/0(.' A!.2' &' 4/.!,!-&.!/4' /,' .2*' 1&5' A2*4' .2*' .(!&;' A/0;1' -/6*' /4' ,' .2*' &--03*(' ,&!;*1' ./' &77*&(' /4' .2*' &77/!4.*1' 1&5' .2*' -2&(>*' ,*;;' .2(/0>2' ' *' !,' .2*' &--03*1' ,&!;*1' A!.2/0.' 70..!4>' !4' &' =&;!1' 7;*&' ,/(' 7/3.7/4*6*4.' 2*' A&3' 7(/F -**1*1' &>&!43.' "' " $; ' ,' .2*' 7&(.!*3' -&6*' !4./' -/0(.' .2*5' A*(*' </.2' 70./4' .2*!(' /&.2' .2*' &--03*(' A!.2' (*37*-.' ./' 2!3'-2&(>*' .2*' &--03*1' A!.2' (*>&(1' ./' 2!3' &43A*(' 2*5' .2*4' 7&!1' .2*' -/0(.',**3 2*' &--03*1' >*4*(&;5' .(!*1' !,' 7/33!<;*' ./' 7(*=*4.' .2*' .(!&;' -/6!4>' /4' 2*(*' A*(*' 6&45' A&53' /,' 1/!4>' .2!3' *' 6!>2.' /(' &4/.2*(' 6!>2.',/(' 2!6' 1!370.*' .2*' &16!3F 3!<!;!.5' /,' .2*' -2&(>*' /4' =&(!/03' >(/0413' 1' .2*' ;*>&;' !4&<!;!.5' 1,' .2*' 7(/3*-0./(' ./' 7(/3*-0.*';!6!.&.!/4'A&4./,'K0(!31!-.!/4' /4' .2*' 7&(.' /,' .2*' &0.2/(!.!*3' &<3*4-*' /,' &45' ;&A' ./' 3*(=*' &3' &' <&3!3' ,/(' .2*' -2&(>*' &41' 3/' /4' ' A!.4*33' &3' 30&;;5' 70.' ,/(A&(1' !4' -&3*3' /,' 1!370.*1' !42*(!.&4-*' ./' 7(/=*' .2&.' .2*' 7(/3*-0./(' 2&1' 4/'-;&!6' 4' *!.2*(' -&3*' .2*' .(!&;' A&3' 7/3.7/4*1' 04.!;' &' 1*-!3!/4' 2&1' <**4' -/6*' ./' 7/4' .2*' /<K*-.!/4' (&!3*1' <5' .2*' &--03*1' /(' 07/4' .2*' -2&(>*' /,' ,&;3*' .*3.!6/45' </0>2.' <5' 2!6' &>&!43.' .2*' A!.4*33' ' .2*' 1*-!3!/4' A*4.' &>&!43.' .2*' &--03*(' 2*' A&3' /<;!>*1' ./' (*.!(*' ,(/6' .2*' -&3*' ,.*(' &' 1*-!3!/4' A&3' >!=*4' /4' .2*' /<K*-.!/4' (&!3*1' <5' .2*' &--03*1' .2*' 7&(.5' ./' A2/6!.' A&3' 04,&=/0(&<;*' 2&1' ./' 7&5' 2!3' &1=*(3&(5' &,!4*' &6/04.!4>' ./' &' 3!0.2' 7&(./,' .2*' =&;0*' /,' .2*' /<K*-.' !4' 1!370.* ;;' .2*' 6&.*(!&;' 4*-*33&(5',/(' .2*' (!&;' .2*' 7&33&>*3' ./' <*' :0/.*1',/(6' ;&A3' 1/-0F 6*4.3' &41' .*3.!6/45' 2&1' ./' <*' 7(*7&(*1' <5' .2*' 7&(.!*3' 2*' *=!1*4-*' -/43!3.*1' /,' A(!..*4' 3.&.*6*4.3' A2!-2' A*(*' >!=*4' !4' &6/4>' .2*' (*-/(13' 2*' A!.4*33*3' A2/' A*(*' (*37/43!<;*' ,/(' .2*3*' 6!>2.' *!.2*(' 2&=*' 6&1*' .2*6' !4' 7*(3/4' <*,/(*' .2*' /.2*(' A!.4*33*3' 2*' A!.4*33*3' A*(*' *!.2*(' A!;;!4>' /(' 04A!;;!4>' ,' &' 7*(3/4' 2&1' &.',!(3.' /,,*(*1' ./' >!=*' *=!1*4-*' &41' &,.*(F A&(13' (*,03*1'./' 1/' 3/' 2*' 6!>2.' <*' 7(/3*F -0.*1'<5'.2*' 7*(3/4' &,,*-.*1'<5'2!3'-/410-.' ,' &45' 7*(3/4' *=*4' A!.2/0.' 2&=!4>' </041' 2!63*;,'./' &77*&(' !"*,03*1'./' >!=*' *=!1*4-*' &,.*(' <*!4>' ,/(6&;;5' 3066/4*1' <5' .2*' 2*(&;1' 2*' 2&1' ./' 7&5' !4./' .2*' 70<;!-' .(*&F 30(5' &' ,!4*' /,' ' (2*' 3.&.*6*4.3' /,' 3;&=*3' A*(*' /4;5' &-F -*7.*1' &3' *=!1*4-*' A2*4' >!=*4' 041*(' ./(.0(*' !4' .2*' 7(*3*4-*' /,' A!.4*33*3' A2/' 2&1' ./' .&D*' .2*6' 1/A4' 2*' /A4*(3' /,' 3;&=*3' /,,*(*1' ./' 30<6!.' .2*6' ./' .2*' ./(.0(*' *!.2*(' /,' .2*!(' /A4' A!;;' /(' /4' .2*' 1*6&41' /,' .2*' /77/3!.*' 7&(.5' A!.2' A2!-2' 2/A*=*(' .2*5' A*(*' 4/.' </041' ./' -/67;5' 2*' /&.2' A&3' (*>&(1*1' &3' .2*' 0;.!6&.*' .*3.' /,' .(0.2' ' 6!>2.' *!.2*(' <*' .&D*4' <5' </.2' 7&(.!*3' /4' .2*!(' /A4' 7(/7/3&;' /(' <*' *0&-.*1' <5' /4*' 7&(.5',(/6' .2*' /.2*(' 2*' .&D!4>' /,' .2*

!!4 ' 8! * ' . " ' &' ,*6!4!4*' ,/(6' -/(F
(*37/41!4>' ./' '/ ' -/4.&!4*1' !4' .
4' .2*' .&;!&4' 65.2/;/>5' .2*' :0**4' /,'
2*&=*4' &41' /,' 2*&=*4;5' ;!>2.' *37*-!&;;5'
.2&.' /,' .2*'4*A' 6 //4*.2*' A!,*' /,' 07!.*('
,.*(' 32*' 2&1' <**4' !1*4.!,!*1' A!.2' .2*'
(**D' *(&'# ' 32*' A&3' (*>&(1*1' &3' .2*'
1&0>2.*(' /,' .0603' 8A2/' A&3'*!1*4.!,!*1'
A!.2' (4039' &41' &3'3!3.*(' /,' 2*(' 203<&41'
4' .&;5' &3' .2*' :0**4' /,' A/6&4D!41' 32*'
A&3' .2*' (*7(*3*4.&.!=*' /,'A/6&4'!4'>*4*(&;'
./' 30-2' &' 1*>(**' .2&.' &3' *=*(5' 6&4' 2&1' 2!3'
6 ") ' 3/' *=*(5' A/6&4' 2&1' 2*(' " ' ./'
A2/6' 32*' /,,*(B'3&-(!,!-*' &41' <5'A2/6' 32*'
3A/(*' .' A&3' &3' . " ' ; " '8.2*' <(!4>*('
/,' ;!>2.9' .2&.' 32*' A&3' A/(32!77*1' ,(/6' .2*'
6/3.' &4-!*4.' .!6*3' &41' !4' 6&45' 7&(.3' /,'
.&;5' 3' 30-2' 32*' A&3' .2*'>/11*33' /,' .2*'
<*>!44!4>3' /,' &;' .2*' 6/4.23' &41' /4' .2*'
-&;*413' &.' /(4*' .2*' -' &41' 2!3'
A!,*' 6&1*' (*>0;&(' 3&-(!,!-*3' ./' 2*(' 3' &;'
>/11*33*3' /,';!>2.'&(*'&;3/'>/11*33*3' /,'<!(.2'
8.2*' &77*&(&4-*' /,' .2*';!>2.',(/6'/0.'/,' .2*'
1&(D4*33' <*!4>';//D*1' /4' &3' &'<!(.29' 041*('
.2*' 3&6*' 4&6*' ' ; " ' 32*' A&3' 2/4/0(*1'
&3' .2*' 6!>2.!*3.' /,' .2*' >/11*33*3' /,' <!(.2'
*(' .*6 7;*' &.' /6*' !4' &3&-(*1'>(/ *' A&3'
/4*' /,' .2*' 6/3.' &4-!*4.' &41' =*4*(&.*1' 5'
&' -03./6' 1&.!4>' <&-D' ./' &6&' &' 7!*-*' /,'
>/;1' A&3' 7;&-*1' !4' 2*(' .(*&30(5' .2*(*&.' .2*'
<!(.2' /,'*=*(5' 6&;*' -2!;1' 2*' . . " '
& ' A&3' .2*' 6/3.',&6/03' ,*&3.' /,' .2*'
>/11*33' .' A&3' -*;*<(&.*1' <5' .2*' /6&4'
6&.(/43' &41' =!(>!43' /4' .2*' $3.' &(-2' .
.2!3' ,*3.!=&;' .2*' >/11*33' A&3' (*7(*3*4.*1'
=*!;*1' A!.2' &' ,;:A*(' !4' 2*(' (!>2.'2&41' &41'
&4' !4,&4.' !4' 3A&11;!4>' -;/.2*3' !4' 2*(' ;*,.'
4/.2*(' &4-!*4.' A/(32!7' 2!>2;5' 2/4/0(*1'
.2(/0>2/0.' .&;5' A&3' .2&.' /,' . " '
8.2*' &=!/0(9' A2/3*' &4-!*4.' >(/=*' &41'
.*67;*' &.' &4,!=!06' A&3' 1**6*1' 3&-(*1' &.'
/6*' A2!-2' !.3*;' 2&1' .A/' .*67;*3'./' .2!3'
1!=!4!.5' .' &4' &77/!4.*1' .!6*' !4' *=*(5'
5*&(' .2*' /6&4' -/430;3' /,,*(*1' &' 3&-(!,!-*'
./' .2*' 04/' &.' &40=!06' 2*' !6&>*' /,' .2*'
>/11*33' &.' .2&.' 7;&-*' A/(*' /=*(' .2*' (/<*3'
/,' &' 6&.(/4' &>/&.3D!4' A2!-2' 3*(=*1' &3' 2*;F
6*.' &41' -0!(&33' A!.2' &' 32!*;1' 2*;1' !4' /4*'
2&41' &41' &' 37*&(' <(&41!32*1' !4' .2*' /.2*('
2!3' A/(32!7' &33!>4*1' ./' .2*' >/11*33' A2/'
7(*3!1*1' /=*(' .2*' ;!,*' /,' A/6&4' .2*' -2&(F
&-.*(' /,' &' 1!=!4!.5' /,' 7(/.*-.!4>' 7/A*(
. " '$ 1' (' T # '&(6*1' A!.2'
&' 37*&(9' 2/' A&3' 37*-!&;;5' A/(32!77*1' <5'
.2*' &<!4*3' A&3' &;3/' &' A&(;!D*' >/11*33'
3' >/11*33' /,' 6&((!&>*' 04/' A&3' !4=/D*1'
&.' A*11!4>3' 041*(' 6&45'4&6*3' 3' 5)!
' 32*' -/410-.3' .2*' <(!1*' !4./' .2*' <(!1*F
>(//6 3' 2/03*' &3' 8" - ' 32*' &4/!4.3' .2*'
' - '

1//(7/3.3' &3' &' 3!>4' /,' >//1' /6*4' &.' 2*('
(*-*7.!/4' &3' $ "- ' 32*' .!*3' *61'04;//3*3'
.2*' 6&((!&>*' >!(1;*' &41' &3' .! " . ' &41'
1' 32*' !3'.2*',/041(*33' /,' 6&((!&>*' 4'
.2*' -!.&1*;3' /,' ./A43' A2!-2' A*(*' 1**6*1'
./' <*' 041*('2*(' 7&(.!-0;&(' 7(/.*-.!/4' 32*'
A&3'37*-!&;;5'A/(32!77*1'<5'6&.(/43'*!.2*('
A!.2' 07!.*(' /(' &;/4*' &3' . " ' 7 : " '<*F
!4>'.2*'A!,*' /,' ' 7 -' &41' .2*'2!>2*3.'
-*;*3.!&;' >/11*33' 4' .2!3' -&7&-!.5'32*' 2&1'
2*(' -2!*,' .*67;*' &.' /6*'/4' .2*' &7!./;'
-;/3*' ./' 07!.*(' .' A&3' .2*(*' .2&.' .2*'
A*;;"D4/A4' >**3*' A*(*' D*B' A2!-2' A*(*'
3&-(*1' ./' 2*(' &3' <*!4>'7(/;!,!-' &41' 1/6*3.!F
-&.*1' -(*&.0(*3' 4/.2*(' 2!>2;5' 2/4/0(*1'
,&4*' /,' . " '7 1 " ' A&3' /4' .2*' =*4.!4*'
./' A2!-2' 2*(' A/(32!7' 2&1' <**4' .(&437;&4.*1'
,(/6' *!!' &,.*(' .2*' 1*3.(0-.!/4' /,' .;6.'-!.5'
2*(*'A&3'&;3/'&' .*67;*' /4' .2*' &7!./;'1*1!F
-&.*1' ./' '" " ' " '8H' .2*' &16/4!32*('!9'
!4' >(&.!.01**8!.' A&3' 3&!19' ,(' 2*(' 3&;0.&(5'
&16/4!.!/43' f !-' 7 7 " " ' !' C'
`' N9' /4*5' 1*(!=*1',(/6' .2*' >/11*33'
!.3' 1*3!>4&.!/4' " ' &3' !.' A&3' -/!4*1'
!4' .2*' .*67;*' /,' . " ' " ' 4/.2*('
6/3.' &4-!*4.' /6&4' A/(32!7' A&3' .2&.' /,'
. " ' $ " '8 04/' /,' .2*' >/&.9' 2!3'
A&3' -*;*<(&.*1' <5' .2*' ,*3.!=&;' 2*;1' <5'
,*6&;*' 3;&=*3' /4' .2*' U.2' 0;5' -&;;*1' ><" '
$ " ' . ((" ' 4'.2*'.2!(1'
04!-' &(' !2*' A/(32!7' /,' . " ' $ '
A&3' <(/0>2.' !4./' /6*' ,(/6' &(.2&>*'
2!3' A&3' .2*' &4-!*4.' .0.*;&(5' >/11*33' /,'
&(.2&>*' 3.(!-.;5'37*&D!4>' .2*' 3.&(.*' /,'
.2*' 2./0!-!&43' 2*4' &(.2&>*' A&3'
(*3./(*1' 041*(' .2*' 67!(*' 2*(' A/(32!7'
,;/0(!32*1' &4*A' /.' /4;5' .2*' >//3*' <0.'
&;3/' .2*' (&=*4' .2&.' ;/=*3' .2*' 2*!>2.3' A&3'
3&-(*1' ./' 2*(' &3' .2*' 7(/.*-.(*33' /,' -!.&1*;3
07!.*(' &. ' 4' .2*' .&;!&4' 65F
.2/;/>5' .2*' 2B2*3.' >/1' !4' 2*&=*4' -/(F
(*37/41!4>' ./' .2*' (**D' L*03' & ' A!.2'
A2/6' 2*' A&3' !1*4.!-B' 4/.' /4;5' !4' 2!3'
4&.0(*'<0.' &;3/' !4' 2!3' 4&6*' /(' 07!.*('
!3' -/67/041*1' /,' . ' 8&4' /;1*(',(/6' !3'
7 ' &41' *' L*03' 3.&413',/(' 7 '
8 41!&4' 7 OP' .2*' <(!>2.' 2*&=*4' !9' 3'
!4' -/0(3*' /,' .!6*' .2*' .&;!&4' >/1' <*-&6*'
!1*4.!,!*1' !.2' .2*' (**D' 2*' A&3' (*>&(1*1'
&3' &' 3/4' /,' &.0(4' &41' /,' 73' .2*'
1*!.!*3' 1**6*1' ./' -/((*37/41' /.' .2*' (**D'
] (J403' &41' 2*&' (*37*-.!=*;5' (/6'
07!.*(' -/6*3' &;' .2&.' &77*&(3' !4' .2*'
2*&=*43' 3' ; ' 8,(/6' ' -' H' ;!>2.' !9'
2*' !3' .2*' <(!4>*(' /,' ;!>2.' .2*' -&03*' /,' .2*'
1&A4' /,' 1&5' &3' A*;;' &3' /,' .2*',0;;' 6//4&.'
4!>2.' 03.' &3' .2*' -&;*413' 8$3.9' /,' *&-2'
6/4.2'&(*'3&-(*1'./' 04/'3/'.2*'!1*3'8$' .2'/('
$V.29' A2!-2' &(*',0;;"6//4'1&53'&(*'3&-(*1

0>03.03 1*-(**1 .2&. .2* /7!4!/43 /, K0(!3.3 &0.2/(!0*1 <5 .2* 2*&1 /, .2* .&.* A*(* ./ 2&=* .2* =&;!1!.5 /, ;&A .A&3 ,(/6 .2* K0(!3.3 &3 &1=!3*(3 /, .2* *67*(/(.2&. &;, ;*>!3;&.!/4 4/A 7(/-**1*1 2*5 2&1 &--*33 ./ &;, .2* 2!>2*3. /,,!-*3 /, .2* -/0(. &41 /, .2* .&.* --/(1!4>;5 .2* 6*4 /, .2* 2!>2*3. >!,.3 &41 -2&(&-.*(<*.//D .2*63*;=*3 4&.0(&;;5 ./ .2!3 7(/F ,*33!/4 &41 *=*4 !4.(/10-*1 !4./ .2* ;&A3 &4 !4-(*&3*1 04!.5 -/43!3.*4-5 &41 353.*F 6&.!- /(1*(41*(0>03.03 .A/ K0(!3.3 A*(* 7(*"*6!4*4. T " " ; (&41 6 " $ .2* ,/041*(3 /, .2* .A/ ;&.*(3-2//;3 4&6*1 &,.*(.2*!(707!;3 *67(/4!03 (-,.;03 &41 &30(!03 &<;403 .2* , "&41 "(*37*-F .!=*;5" &<*/ 3/0>2. ./ *0.*41 2!3 7(/F ,*33!/4&;D4/A;*1>* A2!;3. &7!./ 2*;1 ,&3. ./ .2* .(&1!.!/43 /, ,/(6*(K0(!3.3

2* ,!(3.3-!*4.!,!- -/;;*-.!/4 /, ;&A3 A&3 6&1* 041*(&1(!&4 <5 .2* &<!4!&4 ;&A5*(" A!.2 2!3 9 , !& -;&33!,!*1 -/;;*-.!/4 /, .2* 7(&*./(!&4 *1!-.3 ,(/6 .2* .!6*3 /, .2* *F 70<;!- # ( )& - , " 2!3 3/6*A2&.5/04>*(-/4.*67/(&(5 -/6F 7/3*1 &6/4>3. /.2*(.2!4>3 J 2!3.(/5 /, .2* ;&A .!;;* .2* .!6* /, &1(!&4

41*(.2* 4./4!4*3 K0(!37(01*4-* A&3 &<;* ./ -;&!6 & (*6&(D&<;* (*7(*3*4.&.!=* !4 .2* 3!&.!- T <0. !. (*-*!=*1 !.3 -/67;*.!/4 &41 -/4-;03!/4 !4 .2* ,!(3. 2&;, /, .2* (1 -*4.0(5 .2(/0>2 , " " 5 Hb " <" " , " " ,.*(.2*!(.!6* .2*(* A*(* 4/ K0(!3.3 /, >/*&. &41 /(!>!4&; -&7&-!.5 4 .2* C.2 -*4.0(5 ;!.*(&(5 &-.!=!.5 (*=!=*1 &>&!4 <0. -/4,!4*1 !.3*;, ./ .2* -/;;*-.!/4 /, ;*>&; &0.2/(!.!*3 *37*-!&;;5 .2&. /, !6F 7*(!&; /(1!4&4-*3 203 .2* -1* M +(&C2 " ,!4!32*1 !7 C R -/4.&!43 &4 /,,!-!&; (*-/(1 /, &;; .2* *4&-.6*4.3 1*-(**1 <5 .2* *67*(/(3 ,(/6 .2* .!6* /, /4F 3.&4.!4* 41*(. " "* 8V@U"V?V .2* ;&3. &41 6/3.-/67;*.* /6&4-/;;*-.!/4 /, ;&A3 A&3 6&1* 041*(.2* 4&6* /, .,&* $ $ # I

03.;4;&403 ") 3) " +

03.!403 &.!4 &0.2/(A2/ -/6F 7/3*1 7(/<&<;5 !4 .2* !41 -*4.0(5 &4 &<3.(&-. 3.!;;* *0.&4. /, .2* 4!=*(3&; !3./(5 /, 67*!03 (/>03#+ 1 , "$; , (9 .* 4K/5*1 & >(*&. (*70.&.!/4 !4 .2* !11;* >*3 , .2* -!(-063.&4-*3 /, 2!3 ;!,* 4/.2!4>!3 D4/A4

03.!.;06 2* .*(6 <5 A2!-2 .2* /6&43 1*3!>4&.*1 & ;*>&; =&-&.!/4 /(-*33&.!/4 ,(/6 <03!4*33 !4 .2* -/0(.3 /, K03.!-* !4 .2* 3!..!4>3 /, .2* 3*4&.* &41 *=*4 !4 7(!=&.* ;!,* A2*4 &;; .2* 32/73 A*(* -;/3*1 2!3 ./!D 7;&-* /4 *0.(&/(F 1!4&(5 /--&3!/43 30-2 &3 ,&6!4* /(10(!4> .2* 7*(!;3 /, A&(&41 041*(.2* 67!(* /4 .2* 1*&.2 /, & 6*6<*(/, .2* !67*(!&; ,&6!;5 .A&3 1*-(**1 <5 .2* 2!>2*3. 6&>!3.(&.* 7(*3*4. !4 /6* 30<K*-. ./ .2* &77(/=&; /, .2* 3*4&.* 2*4 .2* /--&3!/4 2&1 7&33*1 <5 !.' A&3 (*6/=*1 <5 & 37*-!&; *1!-. /4 .2* 7&(. ; .2* 6&>!3.(&.*

0.0(7& 4 /;1 &.!4>/11*33 /, ,/04F .&!43 3/6*.!6*3 3&! ./2&=* <**4 <*;/=*1 <5 07!.*(,(/6 A2/6 32* (*-*!=*1 .2* 1/6!4!/4 /=*(&;; .2* (!=*(3 &41 A&.*(3 /, &.!06 2* !3 &;3/ -&;;*1 .2* A!,* /, &403 &41 <5 2!6 .2* 6/.2*(/, /4.03 .2* >/1 /, 37(!4>3 *(>!; 6&D*3 2*(.2* 3!3.*(/, 0(403 /, (1Z& D!4> /, .2* .;.,.,;! 7(/<&<;5 !4 &;;03!/4 ./ & 37(!4>4&6*1 &,.*(2*(!4 .2* -/04.(5 <*.A**4 (1*& &41 &=!4!06 *3!1*3 .2* 7/41 /, 0.0(4& !4 .2* /(06 &. /6* .2*(* A&3 &;3/ & 37(!4>3 <*&(!4> 2*(4&6*1 !4 .2* &6703 &(.!43 .2* A&.*(/, A2!-2 A&3 -/43!1*(*1 3&-(*1 &41 3&;0.&(5 &41 A&3 .2*(*,/(* *67;/5*1 !4 &;; 3&-(!,!-!&; (!.*3 &41 3*(=!-*3 &41 &;3/ 03*1 <5 3!-D 7*/7;** 4 &40&(5 $$.2 .2* &44!=*(3&(5 /, .2* 1&5 /4 A2!-2 2*(.*67;* A&3 *(*-.*1 !4 .2* &6703 &(.!03 <5 0.&.!43 &.0;03 &;; A/(D6*4*4>&>*1 /4 &:0*10-.3 &41 .2* ;!D* -*;*<(&.*1 .2* . 3 & >/11*33 A2/ 1!37*43*3 A&.*(32* A&3 ./>*.2*(A!.2 0;-&4 37*-!&;;5 !4=/D*1 &. .2* <(*&DF !4>/0./, ,!(*3 W " O5 [

,!= 4 ;13 #5 " " 2* >(*&. /6&4 3&.!(!3. </6 &. :0;406 & ./A4 /, .2* /;3-!&43 &</0. CU -F -/(1!4>./ .2* &--/04.3 /, 2!3 ;!,* A2!-2 2&=* -/6* 1*4 ./ 03 2* A&3 .2* 3/4 *!.2*((*&; /(&1/7.*1 /, & A*&;.25 ,(**1 6&4 &41 37*4. .2* ,!(3. 2&;, /, 2!3 ;!,* !4 /6* *4>&>*1 !4 1*-;&6&./(5 *0*(-!3*3 6/(* ,/(7;*&30(* .2&4 &3 & 7(*7&(&./4 ,/(.2* /(06/(.2*3-2//;3 *-/4.!40*1 .2*(* 04.!; 2* <*-&6* & D4!>2. 4 &4 !4F 3-(!7.!/4/, .2* .!6*/, /6!.!&4 2* !3 4&6*1 &3 &41 &3 & "/, *37&3!&4 !4 2!3 4&.!=* .A4 &41 &;3/ &3 .(!<04* /, .2* ,!(3. &;6&.!&4 -/2/(. 2* -/6&41 /, & -/2/(.!3 &;3/ 37*-!,!*1 !4 .2* &--/04.3 &;(*&15 6*4.!/4*1 --/(1!4>./ .2*3* 2* A&3 3*4. !4./ <&4!326*4. 041*(.2* 7(*F .*4-* /, 6!;!.&(5 1!3.!4-.!/4 <*-&03* !4 & 3&.!(!-&; -/67/3!.!/4 2* 2&1 .&D*4 .2* ;!<*(.5/, 1*4/04-!4>.2* 7/;!.!-&; !4,;0*4-* /, & ,&=/0(!.* -/6*1!&4 /, .2* *67*(/(

3' ./' .2*' 7;&-*'&41' 1&.*' /,' 2!3' <&4!32 6 *4. ' .2*' &--/04.3' =&(5' <*.A**4' (!.&!4' &41' >57. ' &41' &;3/' <*.A**4' .2*' ;&3.' 5*&(3' /,' /6!.!&4' 8&>&!43.' A2!-2' .2*/(5' .2*(*' &(*' A*!>2.5' /<K*-.!/439'&41' .2*' (*!>43' /,'*!.2*(' (&K&4' /(' &1(!&4 ' 4' &45' -&3*' 2*' 1!*1' &,.*(' $@U' ' &--/(1!4>' ./'/4*' &--/04. ' !4' .2*' *!>2.5 "3*-741' 5*&(' /,' 2!3' ;!,*' /(' &</0.' $ N' .2*' -&03*' <*!4>'>(!*,&.' 2!3' *0!;* ' 5' /.2*(3' 2*' !3' 6&1*' ./' (*.0(4' ./' /6*' <*,/(*' 2!3' 1*&.2 ' *' 7/33*33' 3!0.**4' 3&.!(*3' <5' 2!6 ' A2!-2' .<*' >(&6 6&(!&43' 2&=*' 1!=!1*1' !4./',!=*'</!D3 ' 4' .2*3*' 2*' 1*;!4*&.*3' A!.2' 6/(&,' !41!>4&.!/4'&41' A!.2' 7!.!;*33'3-/(4' .2*' 04!=*(3&,' -/((07./!4'/,'3/-!*.5 '7&(.!-0;&(;5' !4' .2*' .!6*3' /,' /6!.!&4 '7&!4.!4>'!.3' =!-*3' !4' &;' .2*!(' 4&D*14*33' &41' 0>;!4*33' A!.2' .2*' 6/3.' >;&(!4>'-/;/0(3 ' !3' -/67/3!.!/4' !3' /,.*4' -/4-!3*' ./' .2*' =*(>*' /,' /.*-0(!.5 ' &41' <5' !.3' 3.(/4>' (2*./(!-&,' -/;/0(!4>' <*F .(&53' 2!3' *&(;!*(' 3.01!*3 ' 4' 2!3' /A4' 1&5 ' &41' &,.*(A&(13 ' 2!3' 3&.!(*3' *4K/5*1' >(*&.' 7/70;&(!.5 ' &41' A*(*' 2*;1' !4' 2!>2' (*70.*' G*=*4' !4' .2*' !11;*' >*3 ' A!4>' ./' 2!3' /<3-0(!.5' 2*' *&(;5' &..(&-.*1' .2*' &..*4./!4' /,' ;*&(4*1' 6*4'/,' /;1' &41' A*' 3.!;;' 7/33*33' .2*' (*6&!43' /,' .2*!(' !4103.(5' !4' &-/;;*-.!/4' /,' (' f </0.' .2*' ;!,*' /,' .2*' 7/*.

4/.2!4>' -*(.&!4' -&4' <*' (*&;;5' &3-*(.&!4*1' *0-*7.' ,(/6' .2*' 2!4.3' >!=*4' !4' 2!3' /A4' A(!.!4>3 ' 2*' <!/>(&72!*3' A2!-2' 2&=*' -/6*' 1/A4' ./' 03' 603.' <*' 03*1' A!.2' *0F .(*6*' -&0.!/4W' &41' !.' !3' 4/.' &.' &;' -*(.&!4' .2&.' .2*' !43-(!7.!/4' 6*4.!/4*1' &</=*' (*,*(3' ./' 2!6'&.' &;; h

2=*4-03' #6 " ' = ' ' 2(!3.!&4' &.!4' 7/*.' &41' &' 7(*3<5.*(' !4' 7&!4' </0.' N' 2*' -/67/3*1' &' 7/*.!-' =*(3!/4' /,' .2*' >/37*;' 4&((&.!=*' # T ' 9 "1 ' !4',/0(' </!D3" 2*' &;3/' -&3.' .2*' </!D3'/,' /3*3'&41' /320&'f&41' 01>*3'!4./' .2*',/(6'&41' 72(&3*/;/>5'/,' .2*' /6&4' *7!-' 7/*.3' 2!3'3**6 3'./' 2&=*' <**4' .2*' *&(;!*3.' &..*67.' ./' 6&D*' .2*' 2(!3.!&4' ;!.*(&.0(*' (!=&;' .2*' 7&>&4' !4' <*&0.5' /,' ,/(6' &41' .X 3077;&4.' &41' 307*(3*1*' 2*&.2*4' 7/*.(5' &3' 6*&43'/,'*10-&.!/4' f 2*' *7!-'7&(&72(&3*' /,' .2*' ('!3' 4/A' 4/';/4>*('&3-(!<*1' ./' 0=*4-03' <0.' ./' 57(!&4' 4/.' .2*' <!32/!' /,' &(.2&>*' <0.' &' &0;'/,' .2*' ".2' -*4.0(5' !4' &;'7(/<&<!;!.5' .2*' .2!(1' <!32/7'/,' /0;/4' 8 2*' ; '" L (' -(!.!-&;;5'(*=!*A*-' <5' (/,' &5/(' 77' 000!="0;!!9' ' " * ' EI W !;=*4.&3' 2*' /6&4' >/11*33' /,'5/0.2' # ' / '

$

'4!>2.3' ' [ ) ' &41' /

&<1J-43' /4'/,' ;B1/(03'>(&413/4'/,' &1603'&41',&.2*('/,' &!03' # !&< (03' #5 ' 2*' /(!>!4&./('&41' ;*&1!4>'(*7(*3*4.&.!=*' /,' .2*' 6!6*' # '&3' &' ,/(6' /,' ;!.*(&.0(*" </6' &</0.' $NV' ' *!4>' &' /6&4' D4!>2.' A!.2' &' 3.(/4>' ;/=*' %/,' ,(**1/6' 2*' (/03*1' .2*' A(&.2' /,' .2*' 1!-.&./(' &B&(" &--/(1!4>;5' !4' /' C?' .2*' ;&..*(' -/67*;;*1' 2!6' ./' &77*&(' /4' .2*' 3.&>*' &.' .2*' &>*' /,' 3!0.5' &41' ./' -/67*.*' A!.2' 2!3' (!=&;' 0<;! 03' 5(3' 4' .27'7(/F ;/>0*' .-' .2*' 7!*-*' /4*' /,' .2*' 6/3.'<*&0.!,0;' 6/406*4.3' /,' /6&4';!.*(&.0(*' A2!-2' 2&=*' G-/6*' 1/A4' ./' 03' &<*(!03' -/67;&!43' <!.F .*(;5'/,' .2*' !41!>4!.5' 70.' 07/4' 2!6' !3' &77*&(!4>' &3' &4' &-./(' !4=/;=*1' .2*' ;/33' /,' D4!>2.;5'(&4D' A2!-2' !4' .2!3' -&3*' 2/A*=*(' A&3' (*3./(*1' ./' 2!6' <5' &*3&(' *' 1!*1' &.' ...><;!'!4'C ' 7&(.',(/6' .2*' 7(/;/>0*' &;(*&!15' 6*4.!/4*1' A*' 2&=*' /4;5' 04!67/(B' .&4.',(&>6*4.3' /,' 6/(*' .2&4',/(.5' /,' 2!3' 6!6*3' 2*3*' <*&(' A!.4*33' ./' .2*' /(!>!4&F ;!.5' /,' 2!3' A!.' &41' .2*' =!>/0(' /,' 2!3' 3.5;*

D-*6&' 2*' &.!4' .*(6' ,/(' &' -/&(3*' 1&(D"-/;/0(*1'-;/&D',&3.*4*1'/4'.2*' 32/0;1*(' <5'&'<(//-2' A2!-2' A&3' !4' 03*' &3'&'7(/.*-F .!/4' &>&!43.' (&!4' .' A&3' 7(/=!1*1' A!.2' &' 2//1' 4' ;&.*(' .!6*3' .2*' 4&6*' A&3' >!=*4' ./'&';!>2.'&41'*;*>&4.' 6&4.;*'*!.2*('A2!.*' (XB*1' !4' 5(!&4'70(7;*'A2!-2'A&3'A/(4'/=*(' .2*'./>&' ./' -/67;*.*' .2*' -/3.06*'&.' >&6*3' /(' /.2*(' /0.1//(' /--&3!/43' 4' .2*' .!6*' /,' 0>03.03'A2/',/(<&1*'!.3'0 *'!4' .2*' /(..6' /(' !(-03' !.' ,/(6*1' 7&(.' /,' .2*' 6!;!.&(5' 04!,/(6 ' .' A&3' &,.*(A&(13' -/4.6/4;5' A/(4'*=*4'!4' /6*'!.3*;, ' B-2 3!3' #6 ' 4*' /,' .2*' .2(**' >/11*33*3'/,',&.*' # ' 0\ 9 B-/4;-06 ' ' 37*-!*3' /,' 1(5'3A*&.!4>'" <&.2'!4.(/10-*1',(/6' (**-*'<5'.2*' /6&43' ./A&(13'.2*' *41' /,' .2*' *70<;!-' .' A&3' 37*-!&;;5' 03*1' ./' -/((*-.' .2*' *,,*-.3' /,' *0-*33!=*' !410;>*4-*' &.' .2*' .&<;*' <5' !4F 10-!4>'3*=*(*7*(37!(&.!/4"&.'.2*'-/4-;03!/4' /,' .2*' 7(/-*33' !.' A&3' 030&;' ./' .&D*' *!.2*(' &' -/;1' 7;04>*' /(' &' 32/A*("<&.2' 2*' 1(5

3A*&.!4>"<&.2' A&3' .&D*4' !4' &' 3 6 &;;' -!(-0;&('
(/ / 6 ' -/=*(*1' A!.2' &' -07/;&' &41' -&7&<;*' /,'
<*!4>' (&!3*1' ./' &' 2!>2' 1*>(**' /,' .* 6 7*(&.0(*'
.3' 3/;*' ;!>2.' A&3' &1 6 !..*1' .2(/0>2' &' 2/;*' !4'
!.3' =&0;.*1' (//,' 41*(' .2!3' /7*4!4>' .2*(*'
204>' /4' -2&!43' &' <(/4Q*' 32!*;1' & %'
<5' *;*=&.!4>' &41' 1*7(*33!4>' A2!-2' !.' A&3'
7/33!<;*' ./' (*>0;&.*' .2*' .* 6 7*(&.0(*
' &-.&4.!03' #A " ' ' 707!;' /,'
6 1<!03' 30 6 6 /4*1' <5' !/-;*.!&4' ./' .*&-2'
(2*./(!-' !4' .2*' 3-2//;' /,' !-/ 6 *1!&' !4'
!.254!&' *(*' 2*' * 6<(&-*1' 2(!3.!&4!.5'
8<*,/(*' N 9' &41' !4' 2!3' /;1'&>*' 8&</0.'
$U9' 2*' <*-&6*' .2*' .*&-2*(' !4' &0;' /,'
(!3703' .2*' 3/4' /,' /43.&4.!4*' .2*' (*&.'
' !3' (6&(D&<;*' &</=*' &;;' 2(!3.!&4'
&0.2/(3' ,/(' .2*' 70(!.5' &41' 3 6 / /.24*33' /,'
2!3' 3.5;*' ,/(' A2!-2' 2*' A&3' !41*<.*1' ./' .2*'
-&(*,0;' 3.015' /,' !-*(/' 3/' 6 0-2' 3/' !41**1'
&3' ./' 2&=*' *&(4*1' .2*' .!.;*' /,' .2*' 2(!3.!&4'
!-*(/' !3' >(*&.' A/(D' !3' .2*' H 4.(/F
10-.!/4' ./' !=!4*' ^4/A;*1>*I' #5 " '
' " ' !4' 3*=*4' <//D3' ' 7/*6' /4'
.2*' 72/*4!0' !4' *!>2.5",!=*' -/07;*.3' !3' &;3/'
&3-(!<*1' ./' 2!6 " <0.' .2!3' &3-(!7.!/4' !3'
1/0<.,0;

J-04&!;&' & ' ; ' 2*'
&.!4' 4&6*',/(' .2*' 7&4*;;*1' -*!;!4>3' /,'(/ / 6 3'
A2!-2' A*(*',/(6*1' <5' 7;&-!4>' 7;&4D3' &-(/33'
.2*' <*&6 3' /,' .2*' (//,' A2*(*<5' 2/;;/A'
37&-*3' A*(*' 7(/10-*1' 2*3*' 37&-*3' A*(*'
-/=*(*1' A!.2' A//1' /(' !=/(5' /(' /(4&6*4.*1'
A!.2' 3-0;7.0(*1' (*;!*,3' /(' 7!-.0(*3" /--&F
3!/4&;;5' .2*5' A*(*' *=*4' >!;1*1' /(' !4;&!1'
A!.2' 7;&.*3' /,' >/;1' f /(&-*' ' !!' $R'
g' !' <&4:0*.!4>"(//6 3' .2*5' A*(*' 3/6*F
.!6*3' 3/' ,/(6*1' .2&.' .2*' 7&4*;3' -/0;1' <*'
3;!77*1' &3!1*' ./' ;*.' ,;/A*(3' A(*&.23' &41'
/.2*(' -/6 7;!6*4.&(5' 7(*3*4.3',&;;' !4'32/A*(3'
/4' .2*' >0*3.3' <*;/A' f 0*./4!03' > ' $g
&1/4' 2*' 2041(*1"2*&1*1' 1(&>/4' A2/'
A&.-2*1' /=*(' .2*' >&(1*4' /,' .2*' *37*(!1B3'
8> "0 9" .2*' 3/4' /,' 2/(-53' 8/(' /,' 572/49'
&41' /,' *./' *' A&3' 3;&!4' <5' *(-;*3'
A2*4' 2*' A*4.' ./' ,*.-2' .2*' >/;1*4' &77;*3
3*4&' 4' &4-!*4.' /6&4' >&(6*4.' .'
A&3' &' A//;;*4' 6&4.;*',&3.*4*1' <5' &' <(//-2'
/,' &' -/&(3*' 32&>>5' 6&.*(!&;' .A!-*' &3' .2!-D'
&3' &4' /(1!4&(5' 1 ' 41*(' .2*' 6 7!(*' !.'
A&3' =*(5' >*4*(&;;5' A/(4' &3' &4' /0.*(' -;/&D'
<5' &;;' -;&33*3' /,' 3/-!*.5' *37*-!&;;5' /4' >/!4>'
/0.' ./' 3077*(

&`(.*3' ^!4>' /,' .2J-&' &41' 3/4' /,' (-;"
3!03 "&' 3/4' /,' L*03' *' A&3' .2*' 203<&41'
/,' 4.!-;*!&' &41',&.2*(' /,' 1533*03' 8 9
&*3.(K.>14>3' 4' /6*(' &' (&-*' /,' >!&4.3'
&41'-&44!<&;3' 1A*;;!4>' !4' .2*' 1!3.&4.' 4/(.2'
A2*(*' .2*' 4!>2.3' &(*' 3/' 32/(.' .2&.' .2*'
32*72*(1' 1(!=!4>' 2!3' ,;/-D' /0.' 6**.3' .2*'
32*72*(1' A2"' !3' 1(!=!4>' 2!3' ,;/-D' !4' 2*!('
-!.5' A&3' *;*75;03' ,/041*1' <5' 2603'
2*4' 1533*03' 8 9' -&6*' .2*(*' /4' 2!3'
A&41*(!4>3' .2*!(' D!4>' A&3' 4.;72.!.*3'
2*' ;&.*(' (**D3' 7;&-*1' .2*' 2/6*' /,' .2*'
63.(5>/4!&43' !4' !-!;5' ./' .2*' 3/0.2' /,'
.4&' 4*&(' .2*' ./A4' /,' */4.!4!" .2*'
/6&43' /4' .2*' 3/0.2*(4' -/&3.' /,' &.!06'
4*&(' /(6!&*' f /6*(' ' O' R@' $N?"
20-' =!@"' !-' ' '!!' $' " /(&-*'
'!!!' $?' Cg' # ' ' ,!>' V9
3*=;03' ' /6&4' *7!-' &41' ; ((!-' 7/*."
&' ' &41' * (' *
,!>/*4&' 1>/4&' 1>54/3' 1
&;43' 2*' 3/4' /,' &<1 -03' >(&413/4' /,'
<;51/(03' &41' >(*&.">(&413/4' /,' &1603"
2*4' 2!3' >0&(1!&4' 5-03' A&3' <&4!32*1' /('
3;&!4' <5' 6 72;/4' & ' &41' L*.203' 2*' ,;*1'
./' ,!;/73' .' .2*' 1*&.2' /,' .2*' 030(7*(3'
2*' &3-*41*1' .2*' .2(/4*' /,' 2!3' ,&.2*(3' &41\'
6&((!*1' -&3.&' & ' .)
&67 1*1(?6;&' ' ((
&67(;1!43' 4*' /,' .2*' ' R
' 1 '&
&673' '
&4-*&' ' , " ' "
B!3.&' 2*' /6&4' 4&6*' ,/(' &' ,*4F
-!4>"6&3.*(' /(' .(&!4*(' /,' >;&1!&./(3' & '
@
&4.*(4' /,' */3.2*4*3' 6*1!&*=&;'
4&6*',/(' .2*' 6/406*4.' /,' 53!-(&.*3'&
&4.*(43'

' ' ' '
8 /6*' &.!-&4 9

&1*1/4' --/(1!4>' ./' .2*' 7/3." /6*(!-'
3./(5'&'7(!*3.'/,' 7/;;/' *'2&1'1!37;*&3*1'
.2&.' >/1' <5' 6&((5!4>' &>&!43.' 2!3' A!32*3'

&41 A2*4 .2* (**D3 2&1 1*7&(.*1 ,/(& .!6 * ,(/6 + :;*&=!4> .2* A//1*4 2/(3* <*2!41 .2* 6 2* &>&!4 /,,*41*1 <5 3*(=!4> &3 &7(!*3. /4 .2* /--&3!/4 -, .2* 3&-(!,!-* /,,*(*1 ./ 13*!1/4 --/(1!4>;5 !4 .2* 6!13. /,.2*3&-(!,!-!&;,*&3. .2*>/1 3*4. .A/ 3*(7*4.3 A2/ 3.(&4>;*1 &/-//4 &41 /4* /, 2!3 3/43 4 *(>!;3 &--/04. !!@ Ng &/-//4 1(&A3 1/A4 07/4 2!63*;,.2* A(&.2 /, .2*4&4/4./4;5,/(A&4;!4>.2* (/K&43 &B!43. .2* >0!;* /, .2* (**D3 <0. ,/(7!*(-!4> A!.2 &37*&(.2* ,;&4D /, .2* 2/(3* 1*1!-&.*1 ./ .2* >/11*33 2!;3. 2* A&3 3&-(!,!-!4>./ /3*!1/4 /4 .2* <*&-2 .2*4& -&03*1 .A/ 34&D*3 ./ *6*(>* E(/6 .2* 3B &41 3.(&4>;* .2* ,&.2*(&41 </.2 /, 2!3 3/43 2!3 !4-!1*4. 2&3 <**4 (*7(*3*4.*1 !4 .2* ,&6/03 >(/07 /, 3-0;7.0(* &! -0.9 .2* /(D /, .2* 2/1!&4 &(.!3.3 >*3&41*(' 1;B1 (03 &41 .2*4 1 63 A2!-2 A&3 ,/041 !4 $VN?& 6!1 .2* 6!43 /, .2* 2/03* /, .2* *67*(/(' !.03 &. /6* .3 4/A !4 .2* *;=*1*(* -/0(. /, .2* &.!-&4 03*06 #$ $())

11,!6*!& 8 &. 2) 2* 1&0>2.*(' /, -&3.03 &41 A!,* /,7(/.>3;;,!03 & 2* A&3 -*;*<(&.*1 ,/(2*(&..&-26*4. ./ 2*(203<&41 A2/6 32* ,/;;/A*1 ./1*&.2 /,2*(/A4 ,(** A!;; &16 1/4 /4 /, 03 &41 0(B1]-* ,&.2*(/, (!&6 !.2 403 &41 BV4* &41 D!4> /, !06 7/;;/ &41 3*!1/4 3*(=*1 2!6 ,/(A&>*3 .2* ,/(6*(7&3.0(!4> 2!3 ,;/-D /4 /04. 1& A2!;* .2* ;&..*(*!.2*(&;/4* /(A!.2 .2* 2*;7 /, 7/;;/ &41 B -03 8# + 9 <0!;. .2* A&;;3 /, .2* ./A4 0. &/6*1/4 1*,(&01*1 .2* >/13 /, .2* 7&56*4. .2&. 2&1 <**4 &>(**1 07/4 7/;;/ .2*(*,/(* =!3!.*1 .2* ;&41 A!.2 &7;&>0* &41 /3*!1/4 3*4.&3*&"6/43.*(./ A2/6 .2* D!4> A&3 ,/(-*1 ./ /,,*(2!3 1&0>2.*(*3!/4* *(&-;*3 /4 2!3 A&5 <&-D ,/(6 .2* 6&Q/43 ,/041 .2* 6&!1*4 -2&!4*1 ./ &(/-D !4 .2* 3*&41 2* /,,*(*1 ./ D!;; .2* 6/43.*(!, 2* A*(* >!=*4 .2* 6&>!- 2/(3*3 A2!-2 N 2&1 <*3./A*1 /4 (/3 !4 *0-2&4>* ,/(&4 04*1* A2/6 2/2&1 -&((!*1 /,, &/6*1/4&>(**1 ./ .2!3 <0.&>&!4 <(/D* 2!37(/6!3* --/(F 1!4>;5 *(- *3 & 30<3*:0*4.;5 A&>*1 A&(& >&!43. 2!6 &41 &,.*(-&7.0(!4> .2* -!.5 3;*A 2!6 &41&;; 2!3 3/43 *0-*7. (!&6 B0*&(!& ( ) - &:0*&(!43 @) !0(& 0 J(&(!46 2* 32(!4* /, .2* ; # J(*3 # ;/(139 2* &.!4 4&6* ,/(.2* >//1 37!(!.3 /, .2* 1*7&(.*1 A2/ *=*4 &,.*(1*&.2 -/4.!40* ./ <* &-.!=* !2 <(!4>F !4> <;*33!4>/4 .2*!(7/3.*(!.5 2* /(!>!4 /, .2* A/(32!7 /, .2* ; !3 .(&-*1 ./ .2* ,&-./.2&. .2* /6&43 <0(!*1 .2*!(1*&1 !4 .2*!(/A4 2/03*3 04.!;!.A&3 ,/(<!11*4 <5 .2* ;&A3 /, .2* A*;=* &<;*3 =*(5 2/03* 2&1 !41!=!10&;;5 & A2/ A&3 .2* H;/(1!/(' .0.*;&(5 37!(!. /, .2* ,&6!;5 2!3 -2!*, -&(* A&3 ./ 7(*=*4. !.3 15!4>/0. !3 !6&>* 2&<!.*1 !4 & /1

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3.//1 <*.A**4 .2* ./A/ A "< ' !4 .2* ' /(32(!4* /, .2* ; <B!1* .2* 2/03*2/;1 2*&(.2 A2!-2 !4 *&(;5 1&53 A&3

!4 .2* ' .2* >(/07 &3 & A2/;* A&3 &;3/ -/6 6/4;5 -&;;*1 *!.2*(.2* /(.2* , 2* &4-!*4. /6&4 &41 2!3 -2!;1(*4 3&;0.*1 !. 1&!;5 A!.2 & 6/(4!4> 7(&5*(&41 &4 /,,*(!4> ,(/6 .2* .&<;** ,/(&,.*(.2* -2!*, 6*&; A&3 /=*(&7/(.!/4 /, !. A&3 ;&!1 /4 .2*,!(* /4 .2* 2*&(.2 2*4 .2* 2*&(.2 &41 .2* ; A*(* 4/. !4 .2* *&.!4>"(//6 .2* /,,*(!4> A&3 7;&-*1 /4 & 37*-!&; .&<;* <*,/(* .2* 32(!4* *>0;&(3&-(!,!-*3 A*(* /,,*(*1 /4 .2* -&;*413 4/4*3 &41 !1*3 /, *=*(5 6/4.2 &41 &. &;; !67/(.&4. ,&6!;5 ,*3.!=!.!*3 30-2 &3 .2* <!(.21&5 /, .2* ,&.2*(/, .2* ,&6!;5 .2* &3306 7.!/4 <5 & 3/4 /, .2* 1 = .2* 6&((!&>* /, & -2!;1 /(&. .2* (*-*7.!/4 /, & <(!1* /(.2* (*.0(4 /, &45 6*6<*(/, .2* ,&6!;5 &,.*(& ;/4> &<3*4-* 4 30-2 /--&3!/43 .2* ; A*(* -/=*(*1 A!.2 >&(F ;&413 &41 -&D*3 &41 2/4*5 A!4* &41 !4F -*43* &41 &4!6&;3 *37*-!&;;5 3A!4* A*(* /,,*(*1 07 0./, 1//(3 .2* ; A*(* &;3/ 2/4/0(*1 &3 .0.*;&!5 1!=!4!.!*3 &41 !4 .2* -2&7*;3 &. .2* -(/33"A&53 & .2*(* A*(* &;A&53 .A/ /(8/4* ,/(*&-2 /, .2* !4.*(3*-.!4> (/&139 A2!-2 A*(* 2/4/0(*1 <5 & 7/70;&(,*3.!=&;&$ 2*;1 ,/0(.!6*3 &5*&(# -0.9 0>03.03 &11*1 ./.,!* ; .2* 6 " 1 &41 -/66&41*1 .A/ (*>0;&(,*&3.3 ./ <* 2*;1 !4 2/4/0(/, .2*3* 1!=!4!.!*3 !4 .2* 6/4.23 /, &5 &41 0>03. 0(.2*(.2*(* A*(* ; <*;/4>F !4> ./ .2* A2/;* -!.5 # D 2*5 A*(* !4=/D*1 A!.2 .2* 6/.2*(/, .2* ; &;3/ -&;;*1 &(& &(041& /(&4!& & &41 2&1 &4 &4-!*4. &;.&(&41 .*67;* ./ .2*63*;=*3 !4 /6** 2* ; A*(* !4=/D*1 &3 7(/.*-./(3 /4 & K/0(4*5 !4 .2* -/04.(5 !4 A&(&41 /4 .2* 3*& 4 -/4F .(&3. ./ .2*3* >//1 37!(!.3 A* 2&=* .2* ; &

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&(=&* 4 /6&4 <*;!*, .2* &(4/* !4 -/4.(&3. ./ .2* ; 8.2* >//1 37!(!.3 /, .2* 1*7&(.*19 A*(* .2* 3/0;3 /, 1*&1 7*/7;* A2/ -/0;1 ,!41 4/%(*3. *!.2*(/A!4> ./ .2*!(/A4 >0!;. /(,(/6 2&=!4> 6*. A!.2 3/6* !41!>4!.5 30-2 &3 & =!/;*4. 1*&.2 2*5 A*(* 3077/3*1 ./ A&41*(&<(/&1 !4 .2* ,/(6 /, 1(*&1,0;37*-.(*3 3D*;*./43 *.- &41 *37*-!&;;5 ./3.(!D* .2* ;!=!4> A!.2 6&14*33 !6!;&(37*-.(*3 /, .2* 4!>2. &(* .2* ; /* *07*; .2*6 ,(/6 .2* 2/03* 7*-0;!&(*07!&./(5 (!.*3 A*(* 2*;1 /4 .2(** 1&53 /, .2* 5*&(.2* T.2 $$.2 &41 $ .2 /, &5 .2* ; A2*4 &;; .2* .*67;*3 A*(* -;/3*1 &41 6&((!&>*3 &=/!1*1

&303 8 (; (**D 1!.25(&6<!- 7/*. & * & &.;,441!06 2* &.!4 .*(6 ,/(&4 *0.*43!=* ;&41*1 *3.&.* A2!-2 A&3 A/(D*1 <5 6*&43 /, 3;&=*3 &413 /, .2* .&.* &) 7 .&D*4 !4./ 7*(6&4*4. * <5 < < 3 ,/(6*1 .2* ,/041&.!/4 /, .2*3* 7(/7*(.!*3 &41 .2*!(7/33*33/(*4;&(>*1 .2*6 <5 /<.&!4!4> -/4.!>0/03 7(/F 7*(.5 *!.2*(<5 70(-2&3* /(<5 ,/(-!<;* &77(/7(!&.!/4 2!3 353.*6 /, " >(&10&;;5 -&03*1 .2* 0..*((0!4 /, .2* .&;!&4 7*&3&4.(5 &41 !4=/;=*1 !4 !. .2* >*4*(&, 1*3.(0-.!/4/, .2* -/6 6 04!.5 W; 2 @ ;!45 5 G O=!!! Vg

J.!4! 2* 4&6* /(!>!4&;;5 >!=*4 <5 .2* /6&43 !4 .2* ;&4>0&>* /, -/43.!.0F .!/4&; ;&A ./ .2/3* A2/ <*;/4>*1 ./ .2* &.!4 ;*&>0* .!.3 1!33/;0.!/4 !4 RR .2*5 1!1 4/.(*-*!=* .2* (!>2./, /6&4 -!.!Q*432!7 <0.*4.*(*1 !4./ .2* -/41!.!/4 /, 1*7*41*4. / & 9 .2*5 2&1 &1*,!F 4!.* 7(*-*1*4-* /=*(.2* /.2*(7/3F 3*33*1 .2* & &41 .2* (!>2. /, 3*..;*6*4. !4 /6* &41 .2*!(&..&!4F 6*4. /, .2* (!>2./, -!.!Q*432!7 A&3 6&.*F (!&;;5 ,&-!;!.&.*1 2*5 (*-*!=*1 .2!3 A2*4 .2*5 <&1 /4-* ,!;;*1 &45 &440&; 70<;!- /,; -* !4 .2*!(-/6 6 04!.5 /(A2*4 /4 3*..;!4> !4 /6** .2*5 ;*,.& 3/4 <*2!41 .2* 6 !4 .2* -/;/45 ./ A2!-2 .2*5 <*;/4>*1 ,.*(.2* (!>2. /, -!.!Q*432!7 2&1 <**4 >!=*4 ./ &;; .2* !42&<!.&4.3 /, .&;5 . (RT9 .2!3 ; /(&.!4 !>2. <B6 * 03*;*33 ,/(.&;5 !. A&3 *=*4 >!=*4 <5 6&45 /, .2* *67*(/(3 ./ -/6 6 04!.!*3 !4 .2* 7(/=!4-*3 &41 ICI &;; ,(** !42&<!F .&4.3 /, .2* *67!(* (*-*!=*1 .2* (!>2. /, -!.!Q*432!7 ,.*(.2!3 .!6* .2* /4;5 ; " (*6&!4!4> A*(* .2/3* -&;;*1 .2* ; " " " 3;&=*3 A2/ 2&1 <**4 !4F ,/(6&;;5 3*. &. ;!<*(.5 &41 A2/ A*(* &;;/A*1 .2!3 7(!=!;*>* ,(/6 .2* .!6* /, !<*(!03 ; .;403 /0/, &0443&41/, .2* 4472 (!-& 8&--/(1!4> ./ &4/.2*(3./(5 /, *(F -0;*3 &41 &04& /(/, 1533*03 &41 !(-*9 * A&3 D!4> /, &.!06 &41 ,&.2*(/, &=!4!& .2* A!,*/, 4*&3 8> / 9 .14& =&.(;4& ?

J=*6& 2* /6&4 7&.(/4*33 8 æ3 2*(* A&3 &4 &;.&(1*1!-&.*1 ./ $;* >&.* 4&6*1 &,.*(2*(.2* , ; " &=!4!& &0>2.*(/, J.!403 &41 A!,* /, 4*&3 & &41*(8 (; " 5/0.2 /, <51/3 /4 .2* *;;*37/4. A2/3* 3./(5 A&3

d *(5 -*;*<(&.*1 !4 &4-!*4. .!6*3 &41 A&3 .2* .2* 6* / ,& 6!4/(*7!-7/*6 <5 033*03 * A&3 !4 ;/=* A!.2 ?(?# &41 *=*(5 4!>2. 3A&6 &-(/33 .2* *;;*37/4. ./ =!3!. 2*(! 4 2*(! 3/;!.&(5 ./A*(! &. *3</3 * A&3 >0!1*1 <5 & ;!>2. !4 .2* ./A*(&41 /4 !.3 <*!4B *0.!4>0!32*1 !4 & 4!>2. /, .*67*3. 2* ;/3. 2!3 ;!,* !4 .2* A&=*3 2*4 *(/ 3&A 2!3 -/(73* A&32*1 07 .2* 4*0. 6/(4!4> /4 .2* 32/(*32* .2(*A 2*(3*;,1/A4 ,(/6 .2* ./A*(&41 A&3 .203 D!;;*1

>&(-243 B2 3/4/, .2&6&3 &41 4/ *A&3 D!;;*1 <5 2!3 ,&.2*(!4 & ,!. G/, 6&14*33

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* .!3.*6 !4 6 ,*3.!=&; /, (**D G/(!>!4 ,!(3./(1*(*1 <5 .2* !<5;;!4* </D3 !4 TT □ .A&3 2*;1 /4 *0-*7.!/4&;/*-& &!/43 7&(.!-0;&(;5!4 .!6*3 /,>(*&.1!3.(*33 6&>*3 /, .2* >/13 87(/;6<;5 7/(.&<;* ,!>0(*3 /, A//1 1(&7*1 A!.2 (/<*3 &41 a=!.2 .2*!(2*&13 6&1* /, 6&(<;* -;&5 /(A&09 A*(* ;&!1 /4 &-/0-2 8-&;;*1 .2* %/(" &.&,-;* A&3 7;& *1 <*,/(* .2*6a /4 A2!-2 A&3 ;&!1 /0. & 6*&; &;A&53 & ,(**"A!;; /,,*(!4> . .2* ,!(3. ; 2 " .2*(* A*(* .2(**)&((&4>*1 ,/(.2(** 7&!(3 /,4/4" /6&4 1!=!4!.!*3 7/;;/ &41 &./4& (&1 3 &41 (. 6!3 8 !&4&9 *(6*3 8 *(-0(!039 &41 3*!1/4 8 *7F .04*9 ,.*(A&(13.2!33&-(!,!-* A&3 /,,*(*1 ./.2* 3!0 7&!(3 /, /6&4 >/13 A2/ -/(F (*37/41*1./ .2* .A*;=* >(*&.>/13 /, .2* (**D3 07!.*(04/ *7.04* !4*(=& &(3 *403 7/;;/ !&4& 0;-&4 *3.& B *(-0(5 &41 *(*3 2*3* <&4:0*.3 ./ .2* >/13 >*4*(&;5 .//D 7;&-* &.,*3.!=&;3 G/, 7(&5*(&41 .2&4D3>!=!4> A2!-2 A*(* -&;;*1 " & &41 A*(* 7*(F ,/(6*1 !4 .2* 6&(D*."7;&-*3 /(&.&77/!4.*1 .*67;*3 !4 A2!-2 .2* &((&4>*6*4.3 ,/(.2* 70(7/3* A*(* /4 & 7*(6&4*4. ,//.!4> . A&3 -03./6&(5 .62&=* -/44*-.*1 A!.2 .2!3 G& 1/6*3.!-, *&3. ./ A2!-2 </.2 3.(&4>*(3 M&41 ,(!*413 A*(* !4=!.*1 &41 !4 A2!-2 %*=*4 .2/3* !67(!3/4*1 ,/(1*<. A*(* &;F ;/A*1 ./7&(.!-!7&.* (/6 .2* -/66*4-*F 6*4. /, .2* (1 -*4.0(5 □ & <&4:0*. A&3 (*>0;&(5 >!=*4 ./ .2* .2(** &7!./;!4* 1!=!4!.!*3 07!.*(04/ &41 !4*(=& /4 *=*(5 $ .2 /, /=*6<*(!4 -/4K04-.!/4 A!.2 .2* 7;*<*!&4 >&6*3 41*(.2* 6F 7!(* .2* -*;*<(&.!/4 A&3 /4 .2* $ .2 /, *7.*6<*(&41 A&3 &33/-!&.*1 A!.2 .2* /6&4>&6*3 (/6 □ $T? !. A&3 7(/F =!1*1 <5 .2* /;;*>*, /, 9 " & H 2* !6&>*3 /, .2* .2(** >/13 A*(* 1*-D*1 A!.2 -0(;3 &4/!4.*1 &41 .(!-D*1 /0. A!.2 -/;/0(3 07!.*(A&3 7;&-*1 (*-;!4!4> /4 & -032!/4 A!.2 &>/11*33 /4 *&-2 3!1* /, 2!6 3*&.*1 /4 & -2&!(* &41 .2* 1!=!4!.!*3 A*(* !4=!.*1 ./ & <&4:0*. !4 A2!-2 .2* A2/;* 3*4&.* 7&(.!-!7&.*1

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1D &0>2.(/, 2*3.!03 &41 B3.*(/, ;.2&*& &41 A!,* /, 541&(,!/3 -F -/(1!4> ./ /6*(!. A&3 <5 541&(*/3 .2&. 32* <*-&6* .2* 6/.2*(/, &3./(&41 /;;00 8 /;51*0-*39 &41 &;3/ /, ;',.#*" 64 3.(& A2!;* *;*4 A&3 2*(1&0>2.*(<5 L*03 *4*(&;;5 2/A*=*(*;*4 &41 /;;00 &(* 1*3-(!<*1 &3 -2!;1(*4 /, L*03 ;5.664*3.(& &41 &3./(&3 .2/3* /, 54F 1&(*/3 --/(1!4> ./ .2* ;&.*(6 ,/(3./(5 L*03 &77(/&-2*1 *1& !4 .2* 32&7* /, & 3A&4 &41 32* <(/0>2. ,/(.2 .A /*>>3 /0. /, /4* /, A2!-2 37(&4> *;*4 &41 /0. /, .2* /.2*(&3./(&41 /;;00

>J.; 2 /6&4 .*(6 ,/(8$9 &6<&3F 3&1/(3 A2/ 041*(.2* *70<;!- A*(* -2/3*4 <5 .2* 3*4&.* ,(/6 &6/4> .2* 6/3. 1!3F .!4>0!32*1 3*4&./(3 &41 7(/=!1*1 A!.2 !4F 3.(0-.!/43 &41 7(/7*((*604*(&.!/4 4 .2*!((*.0(4 .2*5 2 ./ 2&41 !4 & (*7/(. ./ .2* 3*4&.*

8@9 *(3/43 &77/!4.*1 &3 &</=* <5 .2* 3*4&.* ./ &--/67&45 .2* >*4*(&;3 &41 .2* >/=*(4/(3 /, 7(/=!4-*3 2(** /(6/(* -/0;1 <* &77/!4.*1 &--/(1!4> ./ .2* 4*-*3" &.5 /, .2* -&3* 2*5 A*(* /, 3*4&./(!&; (&4D &41 A*(* </041 ./ -&((5 /0. .2* -/6F 6&413 /, .2*!(307*(!/(/,,!-*(A2/ A&3 (*37/43!<;* ,/(.2*6 4 2!3 &<3*4-* .2*5 .//D 2!3 7;&-* &3 1 41*(.2* 67!(* .2!3 .!.;* A&3 &;3/ >!=*4 ./ .2/3* A2/ &33!3.*1 !4 .2* 10.!*3 /, K0(!3F 1!-.!/4 &41 >/=*(46*4. !4 .2* 3*4&./(!&; 7(/=!4-*3 4 .2* /.2*(2&41 .2* 1 1 A*(* 4/6!4&.*1 <5 .2* *67*(/(2!63*;, A!.2/0.&45 37*-!,!*1 ;!6!. /, .!6*B ./ &-. &3 >/=*(4/(3 /=*(!67*(!&; 7(/=!4-*3 !4 A2!-2 .2*(* A&3 &4 &(65" 2*5 A*(* 1!=!1*1 !4./ " &41 R "1 1 &--/(1!4> &3 .2* &0.2/(!.5 1*;*>&.*1 ./ .2*6 *0.*41*1 /=*(3*=*(&; ;>!/43 /(/4;5 /4* *3!1*3 .2*3* .2*(A*(* 1 1 " &77/!4.*1 &--/(1!4> ./ .2* 406<*(/, .2* ;*>!/43 2*5 A*(* 6*4 /, 3*4&./(!&; (&4D &41 2&1 .2* -/6F 6&41 /, .2* 3*=*(&; ;*>!/43 &41 /, .2* &00!;!&(5 .(//73 <*;/4>!4> ./ .2*6

>!/4&; 1 4 .2 .!6* /, /6.!;03 .2* 04!.*1 &(6*1 ,/(-*3 /, /6* A*4. <5 .2!3 4&6* 2* ;*>!/4 -/43!3.*1 /, NN D4!>2.3 & 041*(.2* -/66&41 /, & " &77/!4.*1 <5 .2* D!4>

&41 NNN , / / . 3/;1!*(3 041*(.2* -/ 6 6&41 /, .2(** &4-!*4. .(!<*3 7(/=!1*1 &. .2!(1 /, .2!3 ,/(-* &41 /4* .(!<04* !. 2 .2* !4-(*&3* /, .2* 6!;!.&(5 ,/(-*3 /, / 6 * .2* 4&6 * /, 1 A&3 >!=*4 ./ *&-2 /, .2* 30<"1!=!3!/43 *:0!=&;*4. !4 406<*(3 ./ .2* /(!>!4#!; &(65 2* 6!;!.&(5 353.* 6 /, D!4> *(=!03 0;F ;!03 6&1* .2* !4,&4.(5 .2* 6/3. !67/(.&4. 7&(. /, .2* 6!;!.&(5 ,/(-*3 !43.*&1 /, .2* -&=&;(5 &3 2*(*./,/(* 2* ,!=* -;&33*3 !4F -;01*1 !4 .2* " & A*(* /<;!>*1 ./ 3*(=* !4 .2* &(65 &. .2*!(/A4 *07*43* .2/3* A2/ A*(* 4/. -/67(!3*1 !4 .2*3* -;&33*3 Q .2* A*(*,(**1 ,(/6 3*(=!-* &41 A2*4 .2*5 A*(* *4;!3.*1 (*F -*!=*1 .2*!(*:0!76*4. ,(/6 .2* .&.* 2* " .2/3* A2/ A*(* ,(/6 $U ./ C? 5*&(3 /;1 A*(* &77/!4.*1 ,/(,!*;1 3*(=!-* &41 .2* " .2/3* ,(/6 CU ./ ?N , /(.2* 1*,*4-* /, .2* -!.5

2* ,!(3. &41 3*-/41 ;!4*3 /, .2* ;*>!/4 1(&A4 07 !4 04<(/D*4 /(1*(;!D* .2* (**D 72&;&40 -/43!3.*1 /, -!.!&*43 /, .2* ,!(3. -;&33 *:0!77*1 A!.2 2*;6*. -0!(&33 (/041 32!*;1& 8 &41 >(*&=*3 &;; /, <(/4Q* 2* .2!(1 &41 ,/0(.2 ;!4*3 A*(* ,(/6 .2* 3*-/41 -;&33 &41 2&1 4/ -0!(&33 <0. 2&1 .2* 2*;6*. &41 >(*&=*3 &41 ;&(>* /<;/4> 32!*;13 & 2* ,!,.2 &41 3!0.2 A*(* &(6*1 3!6!;&(;5 <0. A!.2/0. >(*&=*3 &41 A*(* 1(&A4 ,(/6 .2* .2!(1 -;&33 2*,/0(.2 -;&33 A&3 &(6*1 A!.2 .2* &3 !.3 /4;5 A*&7/4 /, 1*,*4-* <0. ;!D* .2* /.2*(3 7(/=!1*1 A!.2 37*&(#. &41 3A/(1 .*!.2*(,!;*1 .2* 3*=*4.2 &41 *!>2.2 ;!4*3 /(A!.2 .2* ,!,.2 -;&33 ,/(6*1 .2* $" A2/ /7*4*1 .2* <&..;* A!.2 3;!4>3 &41 /.2*(;!>2. 6!33!;*3

4 !67/(.&4. &;.*(&.!/4 &3-(!<*1 ./ &6!;;03 8&</0. - TN9 A&3 .2* &</;!.!/4 /, .2* 72&;&40 &41 !4.(/10-.!/4 /, .2* " ,/(6&.!/4 A2!-2 7(*=&!;*1 .!;; .2* .!6* /, &(!03 8*41 /, .2* @41 -*4F .0(5 9 4 .2* ,;/0(!32!4> 1&53 /, .2* *70<;!- .2* 4/(6&; 3.(*4>.2 /, & ;*>!/4 A2!-2 -/0;1 <* !4-(*&3*1 !4 .!6* /, 4**1 -/43!3.*1 /, NN D4!>2.3 &41 C @NN , / / . 3/;1!*(3 # 4 (*37*-. ./ .2* A*&7/43 03*1 .2* ;&..*(A*(* 1!=!1*1 !4./ ,/0(D!413 &--/(1!4> ./ .2*!(;*4>.2 /, 3*(=!-* &41 ,&6!;!&(!.5 A!.2 A&(,&(* 8$9 $ @NN (&;; !4 *&(;5 6&42/1 8@9 $ @NN " !4 .2* ,0;; =!>/0(/, ;!, * 8 9 ?NN A2/ A*(* 7(/=*1 *.*(&43 &41 8C9 $ @NN A2/ A*(* ;!>2.;5 &(6*1 &41 A*(* 1(&A4 ,(/6 .2* ;/A*3. -;&33*3 /, .2* -*4303 2* .2(** ,!(3. -;&33*3 2&1 &<(/4Q* 2*;6*. & A1.2 & ;/,.5 7;06* / , ,*&.2*(3 &* &;*&.2*(4 -0!(&33 & >(*&=*3 &41 & 3A/(1 &1 - 3 A2!-2 &,.*(.2* 3*-/41 04!- &(" A&3 / , .2* 7&4!32 <!41 <*!4>32/(. 3.(/4> &41 .A/"*1>*1 ,!..*1 ,/(.2(03.!4> (&.2*(.2&4 -0..!4> &41 A/(4 /4 .2* (!>2. 3!1* 2*(* A&3 &;3/ & 37*&(A2!-2 !4 .2* .A/ ,!(3.1!=!3!/43 A&3 & &41&6/4> .2* &;&4-* f /;5< =!@ g 2* A*(* &(6*1 A!.2 &;*&.2*(2*;6*. &1 : & ;!>2. 32!*;1 & &41 & 3A/(1 &41 3*=*(&;;!>2. K&=*;!43 2* NNN 2*&=!;5 &(6*1 6*4 A*(* 1!=!1*1 !4./ N " 406<*(!4> $@N 6*4 *&-2 &6/4> .2* (&41 " &41 ?N *&-2 &6/4> .2* &41 A*(*&>&!4 30<1!=!1*1 !4./ .A/" </1!* -&;;*1 " &41 ;*1 <5 -*4.0"B (!/43 & , .2* $ @NN @N A*(* &;/..*1 ./ *&-2 -*4.0(5 &41 .2*5 ,/(6*1 .2* ,!6&; -/67;*6*4./, *&-2 6&4!7;* 4 .2* ,!*;1 /, <&..;* .2* 6&4!7;*3 A*(* 1(&A4 07 !4 /7*4 /(1*(3*7&(&.*1 ;&.*(&;;5 ,/(6 /4* &4/.2*(<5 !4.*(=&;3 -/((*37/41!4> ./ .2* <(*&1.2 /, *&-2 6&4!7;* !4 ,/(4. 2* &((&4>*6*4./, .2* 6&4!7;*3 A/0;1 .203 (*3*6<;* .2&./, .2* <;&-D 3:0&(*3 /4 &-2*33</&(1 2*5 ,*;;!4./.2(** 1!=!3!/43 .2* (!4 .2* ,/(4. (&4D A!.2 .2* " <*2!41 .2*6 &41 .2* !4 .2* (*&(,.2* ,!(3.1!=!3!/4 .2* (A*(* -/67*;;*1 ./>!=* A&5 .2*4 .2* 3*-/41 1!=!3!/4 .2* " B=&4-*1 .2(/0>2 .2* !4.*(=&;3 ;*,.<5 .2* 6&4!7;*3 /, .2* ,!(3.1!=!3!/4 ! (" !4 .2*!(0(4 2&1 ./ (*.(*&. .2*4 .2* .2!(1 1!=!3!/4 .2* " A2/ 2&1 <**4 7(*=!/03;5 D4**;!4> 7(/.*-.*1 <5 .2*!(32!*;13 &;;/A*1 .2* (&41 " ./ ,&;;*<&-D !4./ .2* !4.*(=&;3 3*7&(&.!4> .2* 6&4!7;*3 / , .2* &41 .2* 63*;=*3 -;/3!4> .2*!((&4D3 7(*33*1 ,/(A&(1 ./ 6**. .2* *4*65 B2* NN D4!>2.3 / , .2* ;*>!/4 A*(* 1!=!1*1 !4./ $N / , N 6*4 *&-2 &41 A*(* :0!77*1 A!.2 &;<(/4Q* -0!(&33 ;*&.2*(4 >(*&=*3 2*;6*. 32!*;1 & ;/4> 3A/(1 ,/(&..&-DF !4> &41 &;/4> ;&4-* 7(/=!1*1 &. </.2 *413 A!.2 &4 !(/4 7/!4. &-2 A&3 041*(.2(** 1*-0(!/43 &41 .2(** 041*(" /, -*(3 & " 2* ;*>!/4 &3 &A2/;* A&3 041*(.2* -/66&41 /, 3!0 (" &

2* -/430;&(&(!45 -/43!3.*1 /, .A/" ;*>!/43 /0(;*>!/43 A*(* (*>0;&(;5 ;*=!*1 !4 *&-2 5*&(!4 ./.2*(A/(13 $? RNN ,/./ 3/;1!*(3 &41 $ @NN -&=&;(5 2!3 ;*=5 /, -!.!Q*43 A&3 ,0(.2*(3A*;;*1 <5 .2* .&;!&4 &;;!*3 & &< /15 /, @N NNN ,/./ 3/;1!*(3 &41 ?NN -&=&;(5 .203 &11!4> ./ *&-2 /, .2* .A/ -/430;&(&(6!*3 $N NNN ,/./ 3/;1!*(3

&,.*(' .2*' 6&44*(' /,' .2*' (**D' 72&;&40' A!.2/0.' !4.*(=&;3' !4' !.3' ;!4*' &41' A!.2' & 1!=!3!/4' /,' .(//73' !4' !.3' (*&(' 4' !.3' *:0!7F 6*4.' .2*(*' A&3' &4' !67/(.&4.' &;.*(&.!/4' <*>!44!4>' A!.2' .2*' 3*-/41' 2&;,' /,' .2*' (1' -*4.0(5' A2*4' & ' .2*' 3/;1!*(3' /,' .2*' ;*>!/4' -&((!*1' ;/4>' 3A/(13' 9K P1$' &41' .2*' ,!(3.' ,!=*' -/2/(.3' .A/' $'/4*';&(>*('&41'&4/.2*('36&;;*('A2!;*' .2*' ;&3.' ,!=*' 2&1' " " $'/(' K&=*;!43' 3*(=!4>'&3' 6!33!;*3' &41',!..*1' A!.2' &';*&.2*(';//7'./'2*;7'!4'20(;!4>'.2*6'A!.2' 7(*-!3!/4

2*' 6!;!.&(5' 603!-' /,' .2*' /6&43' A&3' 7(/=!1*1'<5' 8 " '9 ' !'&('" ' . ' $ * *('! " '. ' ! *&(' &41' " '. ' ! !#'?(' 4'3.&41&(13' /(' *43!>43' ' 1*! '&41' : , ! ' 4' ;*=5'/&.2'/,'&;;*>!&4-*'7&5'&41'1!3-2&(>*' ,(/6'3*(=!-*' ' $#' & & * " ') *" ! '&41' !33!/' 2*' &--/67&45F !4>'-0.'8,(/6'.2*' /;064'/,' (&K&4$'(*7(*F 3*4.3'.2*'3/;1!*(3',/&';*>!/4'/4'.2*'6&(-2

^ ' ' ' '

8 *;!*,'.(/6'.2*' /;064'/,' (&K&4' /6*9

-&((5!4>' .2*!(' 2*;6*.3' -;/3*' ./' .2*' (!> +' 32/0;1*('&41' .2*!('D!.'&.' .2*' ./7' /,' &'7/;*' (*3.!4>' /4' .2*' ;*,.

!./4(>;&'. ' H'3(=!-*' 7*(,/(6*1' ,/(' .2*' 70<;!-!9 ' '.*(6'&77;!*1'&.' .2*43' ./' *!.2*('&4'/(1!4&(5'/(' *0.(&/(1!4&(5'3*(=!-*' A2!-2' .2*' .&.*' !67/3*1' /4' !.3' A*&;.K!!*(' -!.!Q*43' !4' &--/(1&4-*' A!.2' &'(*>0;&('(/.&F .!/4' 2*' '3*!=!-*3' A2!-2'-!.!Q*43' A2/3*' 7(/7*(.5' &6/04.*1' ./' 6/(*' .2&4' .2(**' .&;*4.3' fE?NNg' A*(*' (*:0!(*1' ./' 7*(F ,/(6'&(*Ⅱ 8$9' .2*' $' .2*' 6/3.' *OF 7*43!=*' 3*(=!-*' /,' .2!3' D!41' !4=/;=!4>' .2*' *:0!76*4.' /,' &'-2/(03' .(1' ,/(' !.3' 603!-&;' -/67*.!.!/43' &.' 70<;!-' ,*3.!=&;3' A2!-2' A*(*' &--/67&4!*1'<5' .2*&.(!-&;'&41' 603!-&;'7*(F ,/(6&4-*3' 8@9' 2*' 4 # " $' A2!-2' !67/3*1' .2*' /<;!>&.!/4' /,' .(&!4!4>' !4' .2*' 564&3!&'.2*'-/67*.!./(3',/(' .2*' >564&3.!-' -/4.*3.3' 3077;5!4>' .2*'6' A!.2' 7(/7*(' 1!*.' A2!;*' .2*5' A*(*' !4' .(&!4!4>'&41' 7(/=!1!4>' &.' .2*' >&6*3' .2*'63*;=*3',/(' .2*' (*:0!3!.*' &((&4>*6*4.'&41'1*-/(&./!/4'/,' .2*' 3-*4*' /,' .2*' -/4.*3.' 2*' 6/3.' *07*43!=*' .57*' /,' .2!3',/(6' /,' 3*(=!-*' A&3' .2*' # " $' .2*' *:0!76*4.' /,' .2*' ./(-2'(&-*'.(6 1$'A2!-2' !4' /4*' !43.&4-*' f(*-/(1*1' !4' 53!&3' (' @$' ' g' -/3.' .A*;=*' # " ' fECNg' 8 9' 2*' ' " $' /(' 307*(!4.*41*4-*' /,' .2*' 3&-(*1'*6<&33!*3'. " 1'3*4.' ./' .2*',/0(' >(*&.' 4&.!/4&;' ,*3.!=&;3' /(' ./' *;/3' &41' /.2*(' 2/;5'7;&-*3' 4' .2!3' -&3*' .2*' .&.*' -/4.(!<0.*1' 7&(.' /,' .2*' *07*43*' 2*(*' A*(*' /.2*(' -/4,!4*1' ./' .2*' 3*7&(&.*' .(!<*3' &41' 1*6*3' 30-2' &3' .2*' *4.*(.&!4!4*4.' /,' 6*6<*(3' /,' .2*' -;&4' /4' ,*3.&;' /--&3!/43

2*' 6/3.' *07*43!=*' /,' &;;' A&3' .2*' ' ' -&;;*1' .2*' 6' " $' A2!-2' A&3' 4*-*33&(5' /4;5' f/(' (&.2*(' 6&!4;5g' !4' .!6*3' /,' A&(' 2!3' !4=/;=*1' .2*' *:0!76*4.' /,' &' 32!7' /,' A&(' &41' A&3' (*:0!(*1' /,' .2*' A*&;.2!*3.' -!.!Q*43' /4;5' *,/(*' .2*' *(3!&4' &(3' .2*' *:0!76*4.' /,' .2*' ,/(.5"*!>2.'./',!,.5'32!73' /,' .2*' .2*4!&4' 4&=5' /,' .2&.' .!6*' 1*=/;=*1' /4' .2*' " " ' .(1' 2*4' .2*' 406<*(' /,' .2*' ,;**.' A&3' !4-(*&3*1' .2*' 4*-*33&(5'406<*(' /,'.(!*(&(-23' A&3' 4/6!4&.*1' !4' *&-2' 5*&(' <5' .2*' ' 2*' .&.*' 7(/=!1*1' .2*' =*33*;' ' .2*' 20;;' &41' 6&3.' &41' *=*(5'.(!*(&(-2' 2&1' ./' ,!.' /0.' .2!3' =*33*;' A!.2' .2*' 4*-*33&(5' *:0!7F 6*4.' ./' D**7' !.' !4' (*&1!4*33',/(' .2*' 5*&(' &41' ./' 6&4' !.' A!.2' &' -/67;*.*' -(*A' /,' /&(36*4' &41' /.2*(3' 2*' .&.*' 3077;!*1' 7&5' &41' 7(/=!3!/4',/(' .2*' -(*A' .2/0>2' .2*' 306' 7&!1' 1!1' 4/.' &;A&53' 30,; !-*' ,/(' .2*' 70(7/3*' !.' &,.*(A&(13' 3077;!*1' .2*' ,0(4!F .0(*' /,' .2*' =*33*;' &;3/' /' ;!>2.*4' .2*' *07*43*' A2!-2' &6/04.*1' ./' <*.A**4',/(.5' # " ' &41' &.&;*4.' 8E$ "E@NN9' !.' <*-&6*' &;;/A&<;*' &</0.' C$$' (' ,/(' .A/' 7*(3/43' ./' 32&(*' !.' ,.*(A&(13' !4' VR' .A*4.5' # # " ' .(1' A*(*' !43.!.0.*1' ' -/6F 7&4!*3' -/43!3.!4>' /,' 3!0.5' -!.!Q*43' *&-2' A!.2' &' -/6 6!..**' /,' .2*' NN' A*&;.2!*3.' -!.!Q*43' &.' .2*!(' 2*&1' .2*' NN' 1!3.(!<0.*1' .2*' *07*43*' /=*(' .2*' !41!=!10&;' # # " ' !4' 30-2' 3/(.' .2&.' .2*' -/3.' /,' &' 3!4>;*' .(!(*6*' A&3' 32&(*1'<5'&'>(*&.*(' /(';*33' 406<*(' /,' -!.!Q*43' &3.;5' &</0.' CN' .2*' !4-!"

8 *4-* / ,' .2*' 20(1*4' A&3' (*>0;&.*1' <5' &' ;&A' !4.(/10-*1' <5' *6/3.2*4*3' A2*(*<5' &;' -!.!Q*43' A!.2' .2*' *0-*7.!/4' /,' .2*' 7//(*(' -;&33*3' </(*' .2*' *07*43*' !4' 7(/7/(.!/4' ./' .2*!(' 7(/7*(.5' 203' 7(/7*(.5' f/(' (&.2*(' .&O&<;*' -&7!.&;g' &6/04.!4>' ./' .*4' .&;*4.3' !67/3*1' .2*' /<;!>&.!/4' /,' *:0!77!4>' /4*' =*33*;' .A*4.5' .&;*4.3' .A/'=*33*;3'&41'3/' /4' 2/3*' A2/' 2&1';*33' .2&4' .*4' .&;*4.3' A*(*' ./' -;0<' ./>*.2*(' &41' ./' 6&D*' 07' .2&.' &6/04.' &6/4>' .2*6

2*' .!6*' /,' 3*(=!-*' ;&3.*1' &3' 2&3' <**4' &;(*&15' 3.&.*1' ,/(' /4*' 5*&(' 4' !.3' *07!(&.!/4' .2*' .(!*(&(-2' A2/' 2&1' ;//D*1' &,.*(' .2*' =*33*;' A&3' (*37/43!<;*' ./' .2*' ; 1 '# ',/(' .2*' -/41!.!/4'/,' .2*' =*33*;' &41' 2&1' ./' 2&41' !4' 2!3' &--/04.' /,' .2*' *07*41!.0(*' /,' .2*' 3063' 7&!1' <5' .2*' .&.*

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8 /!5!!*' &.!-&4' 03*06 9

4/.2*(' </&&(1' .2*' < ' /,' .2*' " ' 8.2*' !437*-./(3' /,' .2*' 1/-D5&(139' 307*(F !4.*41*1' .2*' (*>0;&(',0;,!;6*4./,' .2*' 10.!*3' /,' .2*' .(!*(&(-23' &41' A*(*' &(6*1' ,/(' .2!3' 70(7/3*' A!.2' -/670;3/(5'7/A*(3

/' /4*' A&3' -/67*;;*1' ./' 041*(.&D*' 6/(*' .2&4' /4*' 1 ' &.' .2*' 3&6*' .!6*' /(' .A/' !4' .A/' !66*1!&.*;5' 30--*33!=*' 5*&(3' 2*' /4;5'7*(3/43'*0*67.',(/6'.2*' .(!*(&(-25' A*(*' .2*' &(-2/43' 046&((!*1' H 2*!(*33*3 I' &41' /(72&43' 07' ./' .2*' *41' /,' .2*',!(3.' 5*&(' &,.6' .2*5'2&1'-/6*' /,' &>*' 2*' /<;!>&.!/4' ./' 3*' .2&.' .2*' 1 ' A&3' 1!3-2&(>*1' !4' *&-2' 7&(.!-0;&(' -&3*' ,*;;' /4' .2*' .(!<*

-/4-*(4*1' ,' &45' /4*' -/43!1*(*1' .2&.' 2*' 2&1' <**4' 04,&!(;5'-2/3*4',/(' .2!3' 10.5' &41' &' A*&;.2!*(' 7*(3/4' 7&33*1' /=*(' 2*' -/0;1' (*3/(.' ./' .2*',/(6'/,' -2&;;*4>*' ./' *0-2&4>*' 7(/7*(.!*3' D4/A4' &3' .2*' " ' # ' W$' 4.(/10-.!/4' ./' *6/3.2*4*3' ' ;' " ' *1' &4153' 77' !!"0=!!! g

6,!(*3' 2/3.3' & '

43&' ',*3.!=&;'!4' 2/4/0(',' !/4530&' & ' * 'K

>/-2J(3' ' (**D'3-0;7./(',' .2*43' A2/' 8&</0.' VN' A&3' *4>&>*1' A!.2' -?7&3'!4' .2*' &1/(46*4.',' .2*' &03/;*06' & ' /,' &;!-&(4&3303' 4*' /,' 2!3' 6/3.',&6/03' A/(D3' A&3' .2*' <(/4Q*' >(/07' /,' 6 ": ' " ' (' 9 1 '&' A/(D'(*6&(DF &<;*' ,/(' !.3' !4>*4!/03' -/67/3!.!/4' A2!-2' </;1;5'=*4.0(*3' ./' .2*' =*(>*' /,' A2&.' !3' &;/A*1' <5' .2*' ;&A3' /,' 3-0;7.0(*' &41' &;3/' ,/(' !.3' -2&(6!4>' .(*&.6*4.' /,' .2*' 5/0.2,0;' ,/(6' K ' !.' 3/&(3' !4./' .2*' &!(' .' !3' &7F 7&(*4.;5'!6!.&.*1'!4'.2*' A*;;"D4/A4' 6&(<;*' >(/07' !4' .2*' &.!-&4' &' -0.9

(43&4 51(&' ' ! &

*3214&Q' ' (**D' (2*./(!-!&4' A2/' ;!=*1' *&(;5' !4' .2*' $3.' -*4.0(5',' /0(' *(&' *' -/67/3*1' 7/;!.!-&;' 1*-;&6&.!/43' /4' !6&>!4&(5'./7!-3' /',' .2*3*' 2&=*' -/6*' 1/A4' ./' 03' *02/(.!4>' .2*' .2*4!&43' !4' .2*' *;/7/44*3!&4' &(' ./' <*' </;1' !4' <&..;*' &>&!43.' .2*' 2*<&43' &41' .2*' 7&(.&43

.2 '8H' .2' (!=*('/,' /<;!=!/4'I9' '(!=/(' /,' &1*3'8: 49' /0.' /,' A2!-2' .2*' 30;3' /,' .2*' 1*7&(.3' 1(!4D' /<;!=!/4' /,' &;' .2*!(' *&(;5'*O!3.*4-*

.3'8 &.' ; " ' &0>2.(' /,' .2*' !.&4' /*03' &41' 2/*<*' --/(1!4>' ./' *3!/1' W+(1' CN?g' 32*' A&3' .2*' H' 1&(D"(*<*1' &41' *=*(' 6!;1' &41' >*4.;*' I' A!,*' /,' *03' <*,/(' 2*' A&3' *11*1' ./' `(&' &41' .2*' 6/.2*(' /,' 7/;;/' &41' (. 6!3' --/(1!4>' ./' &' ;&.*(' ;*>*41' 32*' !3' /4;5' .2*' 6!3.(*33' /,' L*03' &,.*(' 2*' !3' A*11*1' ./' *(&*' A2*4' &</0.' ./' >!=*' <!!".2' ./' 2*(' -2!;1(*4' 32*' !3' 70(30*1' ,(/6';&41' ./';&41' .!;;' &.';&3.' 32*' ,!413' (*3.' /4' .2*' 1*3/;&.*' !3;&41'/,' (.5>;&' 8 *;/39' A2!-2' 07' ./' .2&.' .!6*' 2&1',!/&.*1' /4' .2*' 3*&' <0.' A&3' .2*(*&,.*(' ,!O*1' ,!(6;5' /4' ,/0(' 7!;;&(3' /,' &1&6&4.' 3' 6/.2*(' /,' 7/;;/' &41' (.*6!3' 32*' 1A*;;3' !4' ;56703' *(' 1*=/.*1' -2!;1(*4' *O&-.'=*4>*&4-*' ,/(' 2*(' /4' ,?<*' & ' 2*' >!&4.' !.&43' ,/(' &..*67.!4>' ./' /,,*(' =!/;*4-*' ./' 2*(' !3' 704!32*1',/(' *=*(6/(*' !4' .2*' A/(;1'<*;/A' 2*' !3' ,/(' .2*' 6/3.' 7&(.' A/(32!77*1' !4' -/4K04-.!/4' A!.2' 7/;;/' &41' (.*6!

..(3' *..*(3' A*(*' A(!..*4' /4' .&<;*.3' 83**' 1 & ' /(' 36&;' (/;;3' /,' 7&75(03' .2*' &11(*33'<*!4>'70.' /4' .2*' /0.3!1*' 2*5

=*(* .!*1' 07' A!.2' &' .2(*&1' &41' .2*' D4/.'
A&3' 3*&;*1' A!.2' A&0' 4' A*&;.25' /6&4'
,&6!;!*3' 37*-!&;' 3;&=*3' /(' ,(**16*4' # '
B D< ' A*(*' D*7.',/(' A(!.!4>' .2*' -/((*F
37/41*4-*' &41' -&((5!4>' .2*' ;*..*(3'' .2*'
;&..*(' A*(*' -&;;*1'
0-1.2,!&' 2' 4&6*' /,' .2*' 1*!,!*1' 4/
*0!&(-23' 8 (' - (' .' .2*43'
&' </&(1' /,' 3!0' 6*6<*(3' A2/' A!.2' .2!(.5'
&33!3.&4.3' 3&A' .2&.' /4;5' 7(/7*(;5' :0&;!,!*1'
7*(3/43' &..*41*1' 6**.!4>3' /,' .2*' '
2*5' &;3/' *4.*(*1' 5/04>' -!.!Q*43' /4' .2*'
;!3.' /,' .2*!(' 1*6*' A2*4' .2*5' -&6*' /,'&>*
;<14;03' ' (**D'(2*./(!-!&4'/,' 4.!/-2'
!4' 5(!&'</6' $C' ' !3' *10-&.!/4' A&3'
<*>04' !4' 2!3' 4&.!=*' -!.5' &41' -/67;*.*1' &.'
.2*43' A2*(*' 2*' <*-&6*' &' 70<;!-' .*&-2*(*
&.' .2*' *&(;5' &>*' /,'@V' &;.*1',(/6' .2*43'
"./ /43.&4.!4/7;*' !4' CN' 2*' 6*.' A!.2'
%*0.(&/(1!4&(5' 30--*33*' &.' .2*' 3&6*' .!6*'
2*' *0-!.*1' .2*' *4=5' /,' 2!3' (!=&;3' A2/3*'
3;&41*(3' ;*1' ./' 2!3' *070;3!/4' !4' C@' ,.*('
'<*!4>' &-.!=*;5' *4>&>*1',/(',!=*' 5*&(3' &3' &'
70<;!-' .*&-2*(*' !4' !- 6*1!&' !4' !.2K4!&'
2*' A&3' (*-&;;*1'./ /43.&4.!4/7;*' A2*(*' 2*'
A&3' &>&!4' (*6&(D&<;5' 7/70;&(' <0.',/041'
2!63*;,' -/67*;;*1' <5' .2*' -/4.!40*1' 7*('*
!3*-0.!/43' /,' 2!3' 1*.(&-./(3' ./' ;*&=*' .2*'
-&7!.&;'/4-*' 6/(*'!4' V' A!.21(*A'./'
2!3' 4&.!=*' -!.5'/,' 4.!/-2'A2*(*' 2*' A&3'
,/(' 6&45' 5*&(3' &-.!=*;5' *67;/5*1' !4' .2*'
0(-!3*' /,' 2!3' 7(/,*33!/4' &(!1' !4' 7(/6/.!4>'
.2*' !4.*(*3.3' /,' 2!3' ,*;;/A' -!.!Q*43'' <0.'
*=*4' 2*(*' 2*' A&3' 60-2' 7*(3*-0.*!!' <5' 2!3'
*77/4*4.3' 7&(.',(/6' </1!;5' 30,,*(!4>3'
G-&03*1' <5' 2!3' <*!4>' 3.(0-D' <5' &' ,;&32' /,'
;!>2.4!4>' 2!3' /;1'&>*' A&3' 3&11*4*1' <5' .2*'
1*-;!4*'/,';*&(4!4>'&41'.2*',&;;'/,'7&>&4!36'
A2!-2' 2*' 2&1',/(*3**4' A/0;1',/;;/A' .2*'
;&6*4.*1'1*&.2'/,' 2!3' &16!(*(' &41' 7&.(/4'
0;!&4' *' 1!*1' &</0.' T' 2/4/0(*1' &41'
&16!(*1' <5' 2!3' 707!;3'&6/4>' A2/6' *(*'
!4-;01*1' 2(!3.!&43' 30-2' &3',*3!;' .2*' (*&.'
&41' /24' 2(53/3./6' ,/(' &;.2/0>2' 2*'
A&3' *4.2003!&3.!-&;;5' 1*=/.*1' ./' .2*' /;1'
(*;!>!/4' 2*' A&3' 3/' ./;*(&4.' !4' 2!3' (*;&.!/43'
./' .2*' &12*(*4.3' /,' 2(!3.!&4!.5' .2&.' 2*'
"!67&(.*1' 2!3' !43.(0-.!/43'./' 2(!3.!&43' &41'
7&>&43' &;!D*' *' 2!63*;,' >!=*3' 03' !4,/(F
6&.!/4'&</0.' 2!3' ;!,*' &41' A/(D' !4' &' 3*(!*3'
/,';*..*(3'&41'!4'&'37**-2'H'/4'2!3'/A4',/(F
.04*I'A(!..*4'!4'2!3'3!0.!*.2'5*&('<0.'-/6F
7;*.*1'&.'&';&.*('1&.*' *' A&3'-/437!-0/03'
&6/4>' 2!3'-/4.*67/(&(!*3'4/.' /4;5',/(' 2!3'
-/67(*2*43!=*' -0;.0(*' &41' 1*.*;;*-.0&;'
&<!;!.5'<0.'&;3/',/(' 2!3' 7(/10-.!=!.5B' *'
3.!;;'7/33*33'3!0.5"3*=*4'/,' 2!3' 37**-2*3'.2*'
6&K/(!.5',' A2!-2'(*,*('./'.2*'*=*4.3',' 2!3'
.!6*'&41'6&.*(!&;;5'&11'./'/0('D4/A;*1>*
/,'.2*6'&;3/',!,.5'1*-;&6&.!/43'&'-/43!1*(F
&<;*'3*(!*3',' (2*./(!-&;'*0*(-!3*3'/,'=&(!/03'
D!413'&6/4>'.2*6'4&((&.!=*3'3D*.-2*3'/,'
-2&(&-.*(' &41' 1*3-(!7.!/43',' A/(D3'/,' &(.'
83/6*',' .2*6'!67/(.&4.'!4'-/44*0!/4'A!.2'
.2*' 2!3./(5',' &4-!*4.' &(.9'&41' &;3/' &(>0F
6*4.3'./'.2*'37**-2*3',' *6/3.2*4*3' *'
2&=*',!!(.2*(' &</0.'@NNN';*..*(3' &11(*33*1'
./' ,(!*413' 707!;3' (2*./(!-!&43' 3-2/;&(3'
3.&.*36*4' *.-' A2!-2' >!=*' 03' &' =!=!1'
7!-.0(*'/,'2!3'.!6*3' ',/0(.2'7&(.'/,'.2*6'
2/A*=*(' /4;5'*0!3.' !4' &' &.!4' .(&43;&.!/4'
&41'3/6*'/,' .2*6'&(*',' 1/0<.,0;'>*40!4*F
4*33' 41**1' 6&45' ,' .2*' A(!.!4>3' .2&.'
<*&(' 2!3' 4&6*'1/' 4/.' (*&;;5'<*;/4>'./'2!6'
!3' 3.5;*'A2!-2'!3',/(6*1'/4'.2*'<*3.' ..!-'
6/1*;3'!3'70(*' &41' 2&3' &'-*(.&!4'*;*>&4-*'
&;.2/0>2'!.' !3' 4/.' &;A&53',(**',(/6'.2*'
&,,*-.*1'&41'044&.0(&;'6&44*(!36'/,'2!3'&>*
<!*C(' 2*' .&;!&4'>/1'/,'A!4*'!1*4.!,!*1'
A!.2'.2*' (**D'5 ": '&
!;<`(J' 2*' A!,*'/,'.2*' .&;!&4' A!4*">/1'
!<*('!1*4.!,!*1'A!.2'.2*'6 , (" '
& ' 5 % ';&3.'7&(9
\<?(` ;!&' 2*' /6&4',*3.!=&;' /,' .2*'
A!4*">/1' !<*(' & ' *)
!<*(.J3' 6/4>' .2*' /6&43'.2*' 7*(F
3/4!,!-&.!/4'/,' !<*(.5'32*'2&1'&'.*67;*'/4'
.2*' =*4.!4*' *(' 4&6*'A&3' &;3/' >!=*4'
./'.2*' ' ;' &'7;&-*'/,'70<;!-'
<03!4*33'A2!-2'3*(=*1'&6/4>3'./.2*(' 70(F
7/3*3'&3'&4'/,,!-*'/,' .2*' -*43/(3' ,.*(' !.'
2&1'<**4'<0(4.'1/A4'041*(' 0>03.03'!.'
A&3'(*<0!;.'<5' 3!4!03' /;;!/'&41'.2*',!(3.'
70<;!-';!<(&(5'!4' /6*'A&3' *3.&<;!32*1'
A!.2!4'!.3'A&;;3' 4' -/!43' !<*(.&3'!3'(*F
7(*3*4.*1'&3'&'<*&0.!,0;'&41'(!-2;5'&1/(4*1'
6&./(4' .'.2*'*41'/,' .2*' *70<;!-'&,.*('
.2*'&33&33!4&.!/4'/,' &*3&('32*'&77*&(3'A!.2'
&'1&>>*('&41'&'-&7'/,' !<*(.5',!+'$ (
&41'-/!4' " '?')
!<*(.5' !<*(.!4;' '> &
;<!.!4&' 4'&4-!*4.'.&;!&4'>/11*33'/,'
=/;07.0/03'1*;!>2.'&41'/,' >&(1*43'=!4*F
5&(13'&41'=!4.&>*3'/(!>!4&;;5'-/44*-.*1'
A!.2'*403'&41'.2*(*,/(*'/,.*4'-&;;*1'= " '
; " ' 2*' A&3' &;3/' (*>&(1*1'&3'.2*'
>/11*33'/,'1*&.2'&41'/,' .2*' 1*7&(.*1'&41'G
A&3'.2*(*,/(*' &,.*(A&(13'!1*4.!,!*1'A!.2'
(/3*(7!4&' 5' &4' &4-!*4.' /(1!4&4-*'
&3-(!<*1'/(!>!4&;;5'./' *(=!03' 0;;03',/('
=(5'7*(3/4'A2/'1!*1'!4' /6*'&7!*-*'/,'
6/4*5'A&3'1*7/3!.*1'!4'2*(' .*67;* ' =*(5F
.2!4>'(*:0!3!.*',/(' <0(!&;3'A&3'D*7.'.2*(*'
&41'2&1'./'<*'</((/A*1',(/6'!.
!<(&(!*3' 4'.2*'*&(;!*(' .!6*3',!<(&(!*3'
&6/4>' .2*' (**D3'A*(*' /4;5'7/33*33*1'
<5'7(!=&.*'!41!=!10&;3'30-2'&3' 0(!7!1*3'
(!3./.;*' &41' 2*/K92(&3.03' (&1!.!/4

&..(!<0.*1 .<* *3.&<;!32 6*4. / & 70<;!- ;!<(&(5 &. .2*43 ./ !3!3.(!;.03 !4 .2* ?.2 -*4.0(5 2!3 A&3 3&!1 ./ 2&=* <**4 -&((!*1 /,, <5]*(0*3 &41 &,.*(A&(13 (*3./(*1 <5 .2* 5(!&4 *;*0-03 !-&4/(2* >(*&.*3. ;!<(&(5 D4/A4 !4 &4.!:0!.5 A&3 .2&. ,/041*1 <5 .2* ,!(3. ./;* 6 5 &. ;*0&41(!& A2!-2 !3 3&!1 ./ 2&=* -/4.&!4*1 %CNN NNN =/;0 6*3 2!3 ;!<(&(5 A&3 7(*3*4.*1 <5 &(-03 4./4!03 ./ ;`?7&.(& A2*4 .2* <*3.7&(./ , .2* ;!<(&(5 &. .2* 03*0 6 / , ;*0&41(!& A&3 <0(4./1/A4 &. .2* .&D!4> / , .2* ./A4 <5 &*3&(2*(* A&3 &3*-/41 ;!<(&(5 &. ;*0&41(!& !4 .2* (&7C0 6 2* ,!(3. ;!<(&(!*3 A2!-2 A*(* ,/(6*1 &. /6* A*(* (**D &3 ,/(!43.&4-* .2/3* / ,!,!6!;!03 &0 43 0;;& &41 0-0;;03 A2/ 2&1 <(/0>2. .2*6 ./ /6* &3 </!.5 &,.*(.2*!(A&(3 !4 &-*1/4!& .2*43 &41 3!& !4/((/6 .2* 6!11;* /, .2* ;&3. -*4.0(5 /, .2* *70<;!- !. <*-&6* .2* ,&32!/4!4 A*&;.25 ,&6!;!*3 ./,/(6 ;!<(&(!*3 !4 -/04.(5 2/03*3 *37*-!&;;5 .2*5 A*(* (*>&(1*1 &3 !41!37*43&<;* 3*3&(2&1 ,/(6*1 .2* 7;&4 /, ,/041!4> & 70<;!- ;!<(&(5 !4 /;4* &41 /, 3*..!4> &((/ ./ 6&D* & -/;;*-.!/4 /, (**D &41 &.!4 </!D3 2* ,!(3. 70<;!- ;!<(&(5 /, (**D &41 &.!4 </!D3 A&3 &-.0&;;5 3*. 07 !4 .2* .!6* /, 0>03.03 <5 3,4!03 /;;!/ !4 .2* /, ;<*(.&3 0>03.03 2!6 F 3*;,/041*1 .A/ 6/(* .2* -.&=!&4;!<(&(5 !4 .2* 7/(.!-/ /, -.&=!& &41 .2* &;&.!4* !4 .2* .*67;* /, .2* &;&.!4* 7/;;/ 2* 6/3. -*;*<(&.*1 /, .2/3* ,/041*1 <5 .2* ;&.*(*67*(/(3 A&3 .2* : (/, (&K&4 4 .2* ;&.*(!67*(!&; 7*(!/1 .2*(* *(* .A*4.5"*!>2. 70<;!-;!<(&(!*3 !4 /6* 2*(* A*(* 3/6* =*(5 -/43!1*(&<;* 7(!=&.* -/;;*-.!/43 ,/(!43.&4-* .2&. /, *(403 &6 6/4!-03 .2* .0./(/, /(1!&4 A2!-2 -/43!3.*1 /, ?@ NNN =/;0 6*3 $ UNN (/;;3 2&=* <**4 ,/041 !4 &;!<(&(5 1!3-/=*(*1 10(!4> .2* *0-&=&.!/43&. *(-0;&4*0 6 1<(&0!43 2* &.!4 4&6* ,/(&</!DF 3*;;*(# / 8 / 83 !<4 6 & D!41 /, ;!>2. A&("=*33*; A!.2 .A/<&4D3 /, /&(3 &41 /, ;!..;* 1(&0>2. .3 32&7* A&3 ;/4> &41 4&((/A 7/!4.*1 &. </.2* *413 2* 7&..*(4 A&3 .&D*4 <5 .2* *6&43 ,(/6 .2* !<0(4!&43 & 7!(&.!-&; .(!<* /4 .2* &;6&.!-/-/&3. # & ;-2B 2* &..*41&4. /, ,!(-;* # I A2/<(/0>2. 2!6 ,(/6 *; 4!(& .2* 7/!3/4*1 >&(6*4. &41 A&3 20(;*1 <5 2!6 !4./ .2* 3*& A2*(* 2!3 </15 <*-&6* & (/-D !-;4;..3 J-*(I ..*41&4.3 2/ </(* .2* # <*,/(* /6&4 6&>!3.(&.*3 A2/ 2&1 & (!>2. ./ .2*3* " 1" 2*5 A*(* >*4*(& 5 ,(**16*4 &41 ,/6*1 !4 /6* & -/(73 -/43!3.!4> ,.2(* $ 041*(.*4 7(*3!1*4.3 (/6 .2*3* .2* ,!(3./,A2!-2 A&3 *0-;03!=*;5 (*3*(=*1 ,/(.2* /430;3 .2* 6&>!3.(&.*3 !4 /,,!-* 1(*A .2*!(;!-./(3 A2!;* .2* 7(/=!4-!&; /,,!-*"<*&(*(3 4/6!4&.*1.2*!(/A4 ,/(.2*!(.*(6 /,7/A*(2*(* A&3 <*3!1*3 &4/.2*(/, .2!(.5 . / &..*41 /4 .2* 70<;!- 3&-(!,!-*3 ./ 3066/4 .2* " &41 A2*4 .2*3* 6**.!4>3 <*-&6* ;!..;* 6/(* .2&4 ,/(6&; ./ (*7(*F 3*4. !4 .2*6 .2* .2!(.5 ,(/6 .2!3 7(/<&<;5 A*(* &;3/ -2/3*4 .2* ;!-./(3 /, .2* " &41 /, .2* *3.&;3 . A&3 .2* 10.5 /, .2* ;!-./(3 ./ &--/67&45 .2* 6&>!3.(&.* -/4.!40&;;5 A2*4*=*(2* &77*&(*1 !4 70<;!- 4 .2*3* /--&3!/43 .2*5 6&(-2*1 <*,/(* 2!6 !4 3!4>;* ,!;* ;&3. !4 /(1*(&41 !6 6*1!&.*;5 7(*-*1!4> 2!6 <*!4> .2* - ! A2/ A&3 307*(!/(!4 (&4D 7&33*(3 <5 A!.2 .2* *0-*7.!/4 /, 6&.(/43 &41 *3.&;3 A*(* A&(4*1 <5 .2* ;!-./(3 ./ 3.&41 &3!1* &41 6&D* 10*/<*!3&4-* 2* 37&-* (*:0!(*1 ,/(/,,!-!&; 70(7/3*3 A&3 D*7.-;*&(<5 .2* 6 *4.*4-*3 /, 704!32 6*4.A*(* &;3/ *0*-0.*1 <5 .2* 6 2*!(1(*33 -/((*37/41*1 ./ .2&. /, .2* 6&>!3.(&.* !43!1* .2* X3!.5 .2* 1 /0.3!1* &41 !4 &.(!0 6 72 .2* (*1 6!;!.&(5 -;/&D !>2.2/03* $!>2.!4> 4 .2* *&(;!*3.!6*3 .2* (/6 3 /, .2* (**D3 A*(* ;!>2.*1 <5 6*&43 /, 7&43 ,!;;*1 A!.2 1(!*1 -2!73 /, ;/>3 &41 3.(!73 /, (*3!4/03 A//1 /(;/4> 1*&;3.&=*3 .!*1 ./>*.2*(A!.2 <&413 /, <&3. &41 .2* ;!D* 4 ;&.*(.!6*3 ./(-2*3 A*(* 6&1* /, 6*.&;/(-;&5 -&3*3 ,!;;*1 A!.2 (*3!4/03 30<F 3.&4-*3 (&>&!4 A//1*4 3.&=*3 1!77*1 !4 7!-2 (*3!4 /(A&0 A*(* .!*1 -;/3* ./>*.2*(&41 !4-;/3*1 !4 & 6*.&;-&3!4> !43*(.*1 !4 &3&0-*(./-&.-2.2* &32*3 &41 1(/73 /, (*3!4 2*3* ./(-2*3 A*(* *!.2*(-&((!*1 <5 &2&41;* 041*(.2* 3&0-*(/(2&1 &;/4> 32&,.&01 &3.&41 ./3*.2*6 07 /4 *3!4/03 ./(-2*3 A*(* !4 03* &6/4> .2* /6&43 &;3/ !4 *&(;5 &41 ;&.*(.!6*3 2*5 03*1 <*3!1*3 & 1(5 A!-D /, ;!4*4 /(/&D0 6 1!77*1 !4 A&0 /(.&;;/A !;&6 73 2/A*=*(A*(* 4/ 3//4*(!4=*4.*1 .2&4 .2*5 <*-&6* .2* 6/3.>*4*(&; 6*1!06 /, !;;06!4&.!/4 &6/4> </.2 (**D3 &41 /6&43 2* ;&67 -/43!3.*1 /, .A/ 7&(.3 &! 8$9 &0-*(,/(.2* /!; 3/6*.!6*3 (/041

V@

3/6*.!6*3 /=&; 3/6*.!6*3 &4>0;&(A!.2 &
2/;* !4 .2* ./7 ,/(7/0(!4> !4 .2* /!; /,.*4
320. A!.2 & ;!1 8@9 2* A!-D"2/;1*(&
7(/K*-.!4>3/-D*.8 (:- * &.

8$ &41 I ' ' (' & '
8 .&-D*;<*(> R 6 (1*(" .&, ;!!Y9

/6*.!6*3 .2*(* A&3 & 3*-/41 2/;* /4 .2*
30(,&-* /, .2* /!;"=*33*; .2(/0>2 A2!-2 .2*
A!-D -/0;1 2* 7032*1 07 <5 !4*&43 ?, &
4**1;* , .2* ;&67 A&3 ./ <* -&((!*1 !.

!6&>*3 /, >/13 3./(!*3 ,(/6 65.2/;/>5
3-*4*3 /, A&(;!D* &41 1/6*3.!- ;!,* /, .2*
-!(-03 &41 .2* &672!.2*&.(* &4!6&;3
&(&<*3:0*3 *.- 8,!> 9 /6* ;&673 &(*
.2*63*;=*3 ,/(6*1 !4 .2* 32&7* /, >/13
6*4 /(/<K*-.3 /, 1!,!,*(*4. D!413 & : ,!>
J 2*<(/4Q* ;&673 &(* 37*-!&;;5 1!3"
.!4B!32*1 <5 *;*>&4-* &41 =&(!*.5 2*
/7*4!4> .2(/0>2 A2!-2 .2* /!; A&3 7/0(*1
!4 <*!4> 36&;; .2*5 2&1 =!&;3 37*-!&;;5
6&1* ,/(.2* 70(7/3* A!.2 .2!4 4*-D3 &41
& 4&((/A 6/0.2 7*-!&; !43.(06*4.3 A*(*
6&1* ,/(.(!66!4> &41 70;;!4> 07 .2*
A!-D %;!..;* ./4>3 /(2//D*1 7!43 A2!-2
A*(* 3/6*.!6*3 ,&3.*4*1 <5 & -2&!4 ./
.2* 2&41;* / 6*.2/1 /, 7(*=*4.!4> .2*
36/D!4> /, .2* ;&673 A&3 D4/A4 ./ .2*
&4-!*4.3 &4.*(43 A*(* 6&1* /, .(&43"

..2; &41 ^/4*(,;> C?N
% &3*/ /(</4K-/ ' =!!!'!' ' ! '!<' '0;=!;'000'K<' '0 ''6 &3 *(!43 ; " - '$" N'@U' '? $?'
f '@T'T?" ' ' *;;/(!' " (; "

2&1 & 2&41;*" !, ./ <* 204> 47 !. A&3
,0(4!32*1 A!.2 /4* /(6/(* *&(3 ./ A2!-2
-2&!43 A*(* &..&-2*1 2*(* *(* ;&673
A!.2 .A/ .2(** ,/0(&41 3/6*.!6*3 &3
6&45 &3 .A*4.5 A!-D3" .2*3* A*(* 204>
07 /4 .2* (//,/(3*. 07 /4 & 2!>2 3.&41
2* 6&.*(!&; /, &4-!*4. ;&673 A&3 -;&5
6/3.;5 /, .2* (*1 3/(. &41 .2* 6&40,&-.0(*
/, -;&5 ;&673 ,/(6*1 & 7(!4-!7&; <(&4-2
/, .&;!&4 7/..*(5 8 (**D ;&673 /, .2!3
6&.*(!&; &(* (*7(*3*4.*1 !4 ,!>3 $ @ 9 2*
4*0. !4 ,(*:0*4-5 !3 <(/4Q*" !. !3 4/. 3/
-/66/4 ./ ,!41 ;&673 /, /.2*(6*.&;3
&;&<&3.*(/(>;&33 2* 406*(/03 /6&4
;&673 3.!;; 7(*3*(=*1 >*4*(&;;5 *02!<!.
/(4&6*4.3 !4 (*;!*, /, .2* 6/3. =&(!/,!3
D!413 /4 .2* 30(,&-* &41 /4 .2* 2&41;*M

7&(*4. 6&.*(!&;3 30-2 &3 2/(4 /!;*1 ;!4*4
&41 <;&11*(3M .2* 03* /, >;&33 -&6* !4
;&.*(8X **] 4 9
&43 8 (; " 2*(/ (*7(*3*4.!4>
7(/<&<;5 & >/1 /, .2* /;1 (**D 4&.0(*(
A/(32!7" 2!3 1*&.2 3K04</;!- /, .2* ,;&>F
>!4> =*>*.&.!/4 10(!4> .2* 2*&. /, .2*
1/>"1&53 A&3 2564*1 !4 A!1*;5 D4/A4
;&6*4.3 2* ;&6*4. ,/(!403 !3 6*4F
.!/4*1 &3 *&(;5 &3 /6*(f!L 0=!!! VUNg 4
(>/3 &4 &4-!*4. ,*3.!=&; /, !403 A&3 ;/4>
-/4.!40*1 *(* 2* A&3 3&!1 ./ <* .2*
3/4 /, 7/;;/ &41 .2* 7(!4-*33 3 6J.2*
/6 !4 3*-(*. &41 *07/3*1 <5 2!3 6/.2*(
.2* -2!;1 >(*A 07 &. & 32*72*(13 &6/4>
.2* ;&6<3 04.!; ./6 !4 7!*-*3 <5 1/>3
3&6&.2* 2/A*=*(/4 .2* 4*A3 /, A2&.

C 0.' ;*O&41(!&' <*-&6*' .2*' .(0*'!4.*;;*-.0&;'
"-&7!.&;' /,' .2*' *;;*4!-' A/(;1'&41' .2*' 2*&1B
:0&(.*(3' /,' !.3' *(01!.!/4' 2!3' !.' /A*1' ./'
!.3' 7/3!.!/4' &3' 6*.(/7/;!3' /,' .2*' ./;*6&!-'
"154&3.5' !4' >57.' &41' ./' .2*' *4-/0(&>*F
6*4.' >!=*4' <5' .2*' ./;*6!*3' ./' 3-!*4.!,!-'
3.01!*3' *37*-!&;;5' <5' .2*' *3.&<;!32 6*4.' /,'
.2*' >(*&.' !<(&(5'&41' /,' .2*' 03*06' 2*'
>(*&.' &-2!*=*6*4.3' /,' .2*' *&(;!*(' 7*(!/13'
A*(*' .2*' >*40!4*' /0.-/6*' /,' .2*' 4&.!/4&;'
37!(!.'' <0.' A2*4' .2*' 4&.!/4' 4' ;/4>*('
"*0!3.*1' ;!.*(&.0(*' <*-&6*' 6/(*' &41' 6/(*'
.2*' <03!4*33' /,' .2*' ;*&(4*1' 3/' .2&.' *=*4'
7/*.(5' &330 6*1' &' 7*1&4.!-' 1(*33' 3' (*F
>&(13' :'&.'.2*'<*>!44!4>'/,' .2!3'7*(!/1'
.2*' *A' /6*15'3.!;;' *0!3.*1'&41' *410(*1'
,/(' &' .!6*' <0.' .2*4' *07!(*1' (&>*15'&;3/'
G*4K/5*1' &' <(!*,' &,.*(">;/A' !4' .2*' 7/*.3' /,'
A2&.' !3' D4/A4' &3' .2*' ;*0&41(!4*' ;*!&1'
-&(-*;5' &45.2!4>' !3' D4/A4' /,' ;5(!-' 7/*.3'
",(/6' .2!3' 7*(!/1' A2*(*&3' *7!-' 7/*.(5' A&3'
6>&!4' .&D*4' 07' &41' </.2' !.3' <(&4-2*3',/041'
406*(/03',/;;/A*(3' 2*',!(3.'/('4&((&.!=*'
<(&4-2'.//D'.2*',/(6'/,'32/(.'*7!-'.&;*3'<5'
; !-A3'X1!*1'&<0.'@CN9' 5A'
- $)' 81!*1'&</0.'$TN9' '8&</0.'
%@ N 9'n 2*7/*.3'/,'.2*'/.2*'/('('1!1&-.!-'
<(&4-2') ' 8&</0.' @UN9' ('
8&</0.'$VN' 9'&41' /.2*(3'*&>*(;5'1*=/.*1'
.2*63*;=*3' ./' 7/70;&(!3!2>' ;*33' D4/A4'
<(&4-2*3' /,' D4/A;*1>*' 8&3.(/4/65'6*1!F
-!4*'*.-9
'4*A',!*;1',/('*7!-'7/*.(5'A&3'*=*4'1!3F
-/=*(*1' 10(!4>' .2!3' 7*(!/1'!4' .2*' <0-/;!-'
/('7&3./(&;' 7/*63' A2!-2' A*(*' 4&.!=*' ./'
!-!;5' &41' A*(*' >!=*4' &(.!3.!-' ,/(6' <5'
$ (A) ' 8&</0.' @UN' 9' 4' *;*>!&-'
7/*.(5'>//1'3*(=!-*' A&3' 1/4*'*37*-!&;;5'<5'
&;;!6&-203' 6*4.!/4*1' &</=*' .2*' .(0*'
,/041*('/,'.2*'*(/.!-'*;*>5' 2*' 3&6*' 6&5'
<*' 3&!1',/' 7!>(&63
4'.2*' 1*7&(.6*4.' /,' ' .2*' ;*0&4F
1(!4*'*7/-2' *=!4-*1' &3./041!4>',*(.!;!.5'
<0.',/(6'A&3',/('.2*'6/3.'7&(.'4*>;*-.*1'
',.2*'406*(/03'2!3./(!&43',/,.2!3'.!6*'.2*'
&(;!('/,'A2/6'6/3.;5'1*3-(!<*1'.2*'1**13'
/,' ;*O&41*('.2*' (*&.' 1' " A ('
8&</0.' NN9' .2*' 6/3.' 4/.*A/(.25' &(*'
&7)' 81!*1'@V?9' &41' J *'C' 81!*1'
$@@9' *3!1*3' 2!3./(5'!.3*;,' !.3' =&(!/03'
30<3!1!&(5'3-!*4-*3'A*(*'*&>*(;5'-0;.!=&.*1'
,/('&O&67;*' >*/>(&725' &41' -2(/4/;/>5'
A2!-2'(*-*!=*1',(/6' 3 ,;,! ,!3' 81!*1'
&</0.'$TV9' .2*!('3-!*4.!,!-',/(6'&41' .2*'
;&..*('/,'A2!-2'*37*-!&;;5'A&3',0(.2*('1*F
=*;/7*1'<5' 7 ;!1/ <3' 8&</0.'$CN' 9'
!.*(&(5'-(!.!-!36'>(*A'!4./'&4'!41*7*41*4.'
3-!*4-*'&41',;/0(!32*1'041*('.2*'3-2/;&(3'/,'
;*O&41(!&' &41' *(>&603'&3' LR N J)$
8&</0.'@UV9' ' #) &* #/,' 5Q&4.! .&'
81!*1'&</0.'$RV9' '&G#8&</0.'$UN9'<0.'
&</=*' &;;' '(?$ 81!*1'&</0.'$VR'
9' /43!1*(&<;*'7(/>(*33'A&3'&;3/'6&1*'
!4'.2*'*0&-.'3-!*4-*3'!4'6&.2*6&.!-3'<5'
)(A '8 0-;!1'&</0.' NN9' &41' '(A'
0 '81!*1'@$@9'!4'&3.(/4/65'<5' (&./3F
.2*4*3'K03.'6*4.!/4*1'&41' *37*-!&;;5'<5'
/ ( )' 81!*1'&</0.'$@V' '(A2*'F
*3.&<;!32*1'&3.(/4/65'&3'&'3-!*4-*' !6!F
;&(;5'.2*'3-!*4-*'/,'6*1!-!4*'&..&!4*1'>(*&.'
7*(,*-.!/4' !4' ;*O&41(!&' !4' 7&(.!-0;&('
041*(' / 7 '&41' ' $?) ' A)'
72!;/3/725'&;3/'>(*&.';!.*(&(5'&-.!=!.5'A&3'
32/A4'<5'.2*'=&(!/03'3-2//;3'A!.2/0.'2/AF
=('60-2'37*-0;&.!=*'7(/>(*33'7(&-.!-&;'
/(&./(5'*0!3.*1'/4;5'!4'-*(.&!4',(**'-/6F
604!.!*3'/,' 3!&' &41' !4' ^;B/1*3'4/(' 2&1'
!.'&45';!.*(&(5'!67/(.&4-*' 4'.2*'/.2*('
2&41'.2*'3-!*4-*'/,'(2*./(!-'(*-*!=*1'&'
>(*&.'!67*.03'&</0.'.2*'*41'/,' .2*'@41'
-*4.0(5'-2!*,;5'<5'.2*'3*(=!-*3'/,' "
/1 '8&</0.'$@N' '(
, '='+('7 '9
8N '/'V@T' 9
8RN 9 ;;'.2*' (**D'7(/=!4-*3/,' 0(/7*'
3!&'&41' ,(!-&'<*-&6*'!4-/(7/(&.*1'!4'.2*'
/6&4' 67!(*' 203'./'.2*'-*4.(*3'/,';'*&(4F
!4>' A2!-2' 2&1' 2!.2*(./' *0!3.*1'!4' .2*'43'
&41' ;*O&41(!&' A&3' &11*1'&' 4*A' *4.(*'
!4' /6*'.2*'-&7!.&;' /,' .2*'A/(;1' (**D'
3-2/;&(3'/,'*'=*(5'D!41',;/-D*1',(/6'*=*(5'
:0&(.*(./' /6*' /('1!1'.2*5'/4;5'
3.!60;&.*'.2*'(!3!4>'!4.*;;*-.'/,' /6*'<0.'
.2*63*;=*3'(*-*!=*1'60-2'!4.*;;*-.0&;'&1F
=&4.&>*' 2*(*&3' /6&4';!.*(&.0(*'&,.*('
.2*'*41'/,'.2*'$3.'-*4.0(5'3'A&3'3!4D!4>'
(&7!1;5'&41'!4*=!.&<;5'./'!.3'1*-;!4*' (**D'
;!.*(&.0(*'(*-*!=*1'&',(*32'3.&(.',(/6'.2*'
,&=/0('32/A4'./'!.'<5'.2*'*67*(/(3',.2*'
@41'-*4.0(5'.'(*-*!=*1'&',0(.2*('!67*.03'
<5'.2*'-/4.*3."B.2*'04&=&!;!4>'-/4.*3."B'
&>&!43.' 2(!3.!&4!.5'.2*'=!-./(5'/,'A2!-2'
-/4,!4*1' *;;*4!36'A!.2!4'*=*('4&((/A*('
;!6!.3'04.!;'!.3'1*3.(0-.!/4'A&3'3*&;*1'<5'
.2*'*67*(/('03.!4!&4'A2*4'!4'V@T'2*'
-;/3*1'.2*'7&>&4'3-2//;3'!4' .2*43'.2*!('
;&3.'(*,0>*' , :' .&D*3'&'30</(1!4&.*'
7/3!.!/' '!4'.2!3'*7/-2' 2*' 7!>(&6'&;/4*'
(*6&!4*1'!4'-/43.&4.'03*'&41'10(!4>'.2!3'
7*(!/1'60-2'>//1'A/(D'A&3'1/4*'!4'.2!3'
;!4*
!1&-.!/'7/*.(5'!3'(*7(*3*4.*1'-2!*,;5'
<5'5 '8@41'-*4.0(59'&41'.2*',&<0;!3.'
? ' ' %@$ 8<*>!44!4>'/,' (1'-*4.0(5'#9'4&('K
(&.!=*'*7!-'e'T) ' $&* 7)' 8C.2'
-*4.0(5'#9'&41' .2*' >57.!&4') '8V.2'
-*4.0(59' .2*' ,/041*('/,'&' 3-2//;'/,' 2!3

&..*67. ./ <(!4> ,/(*!>4 2!3./(5 &;3/ !4./ .2* ,!*;1 1 81!B @U 9.2* 6/3. K9(/14-.!=* /, /6&4 &0.2/(3 ;&</0(*1 !4 .2* 6/3. 1!=*(3* 7&.23 2!3 A(!.!4>3 /4 >(&66&(/4 ;!.*(&(5 30<K*-.3 &41 /4 &4.!F :0!.!*3 A*(* &16!(*1 ,/(-*4.0(!*3 , :A&3 *4.!(*;5 .2(/A4 !4 .2* 32&1* <5 7(/3* (&6&.!- 7/*.(5 !3 /4;5 (*7(*F 3*4.*1 <5 .2* A2!-2 !6!.&.*1 .2* ;!-*43* /, .2* -&7!.&; &41 A&3 4/A &3 2&3 <**4 3.&.*1 *;&</(&.*1 !4./ ;!.*(&.0(* 2* 8 " /, .2* &</=*"6*4.!/4*1 &(((/ &41 .2* 1!1&-.!- 72!;/3/72!-&; 7/*6 /,) ( ) 81!*1 VV9 &(* /, -/437!-0/03 6*(!. 2* ;&..*(3.!;; 6&!4.&!4*1 .2* 3.K(;* 6/1*;;*1/4 /6*(<5 44!03 <0. <*3!1* .2!3 &4*A 1*7&(.0(* !4 *7!- 7/*.(5 4/A &77*&(*1 2* ;*&(4*1 &41 7/;!32*1 ;*OF &41(!4* (**D 7/*.3 A*(* .2* 6/1*;3 ,/(.2!3 /, A2!-2 &3/;!.&(5 37*-!6*4 ! *0.&4. !4 &4 := E /,")) 81!*1 &</0. VC 9.2* /, *;*03 &41 2*.!3 * !3 7*(2&73 .2* 6/3. (!-2;5 *41/A*1 /, /6&4 7/*.3 &41 !3 .2* ,!(3. */437!-4/03 A(!.*(/, &.!4 ;5(!-3 K !- 7/*.(5 A&3 .2* 6/3. &;!*4 !/ .2* /6&4 -2&(&-.*(&41 A&3 /4;5 <*>!44!4> ./ 6&D* !.3 A&5 &</0. .2!3 .!6 * !4 .2* ,/(63 /, !&6<!- 7/*.(5 *7!>(&63 &41 *;*>!&-3 /(.2*3* ./ / .2* ;*0&41(!4 7/*.3 &(.2* .57* ,.*(.2* 1/A4,&;; /, .2* *70<;!- !4 7(/7/(.!/4 &3 70<;!-;!, 3&4D !4./ .2* <&-D>(/041 .2* !4.*(*3. /, .2* *10-&.*1 -;&33*3 A&7 !4F -(*&3!4>;5 &<3/(<*1 !4;!.*(&(5 *,,/(.3 A2!-2 A*(* ,&=/0(*1 !4 *=*(5 A&5 <5 .2* *67*(/(0>03.03 2!63*;, &41 <5 6*4 /, *6!4*4-* ;!D* .,3*-*4&3 *33&;;& &41 3!4!03 /;;!/ # - (3 7/;!.!-&;*=*4.3 -&03*1 /(&./(5 &41 2!3F ./(5 ./ (*-*1* !4./ .2* <&-D>(/041 .2*,!(3. 7;&-* !4;!.*(&.0(* A&3 &>&!4 .&D*4 <5 7/*.(5 A2!-2 !4 .2* .!6* /, 0>03.03 &..&!4*1 !.3 2!>2*3. 7/!4. !4 .2* *60;/03 &..*67.3 /, .2* 7/*.3 /((*&-2 (**D 7*(,*-.!/4 !4 ,/(6 2* 6/3. 7(/6!4*4. 7/*.!-A(!.*(3 /, .2!3 &>* &(*!F 1 81!*1 $T (A2/ <*>!4 !4> A!.2 !6!.&.!/43 /, .2* <0-/;!- 7/*.(5 /, 2*/-(!.03 30(7&33*1 .2* (**D3 !4 1!1&-.!- 7/*.(5 &41 !4 2!3 ! " ,&32!/4*1 ,/(.2* /6&43 &4&.!/4&; *7!- / (81!*1 R 9 A2/ >&=* 4*A ;!,* ./ .2* 3&.!(!- 7/*.(5 /, 0-! 03 &41 4&.0(&;!Q*1 !4 /6* .2* 6*.(!-&; ,/(63 /, .2* ! ;/!- /1*3 &41 .2* *;*>!&- A(!.*(3 A)) 81!*1 $T ? 5) 81!*1 $V (&41 =6 81!*1 $U 9 2* ;&3.("4&6*1 &;3/ &77;!*1 2!3 7*(,*-.!/4 /, ,/(6 ./ 1!1&-.!- 7/*.(5 A!.2 <(!;;!&4. (*30;.3 (&6&.!- 7/*.(5 &;/4* ,&!;*1 ./ 7(/37*(&3 .2* 7/70;&(!7.*(*3. A&3 *4.!(*;5 &<3/(<*1 <5 .2* , " : A2!-2 A!.2 !.3 >/(>*/03 1!37;&53 A&3 K03. -/6!4> !4./ <*!4>

&4A2!; !4 .2* (*&;6 /, -/6F 7/3!.!/4 .2* 6/3. <(!;;!&4. -/4.(!<0.!/4 /, .2!3 .!6* !3 .2* A/(D /, + * 81!*1 9 A2!-2 -/67(!3*1 .2* -/67;*.* 2!3./(5 /, /6* *3!1* 2!6 6&5 <* 6*4.!/4*1 / !) .2* -/67!;*(/, .2* ,!(3. &.!4 04!=*(3&; 2!3./(5 41*(.2* 67!(* /(&./(5 ;/3. 1&5 <5 1&5 1.3 7/;!.!-&; !67/(.&4-* &41 !4 7(&-.!-* A&3 -/4,!4*1 ./ .2* 3*4&./(!&; 1*<&.*3 A2!-2 A*(* *4.!(*;5 041*(!67*(!&; >0!1&4-* &41 ./ -!=!; ;&AF 30!.3 .3 4&.0(&; ,!*;1 4/A <*-&6* .2* 3-2//;3 /, .2* (2*./(!-!&43 !4 A2!-2 !.' ;!=!4>* 7!-.0(* /, .2* 7(/-**1!4>3 !4 .2*6 &.' .2!3 .!6* !3 >!=*4 <5 .2* 1*3-(!7.!/43 /, .2** $ (A2!-2 A*(* 4/.' (*10-*1 ./* A(!.!4>' .! .2* ,/;;/A!4>' 7*(!/1 82* 1!*1 &</0. U 9 ,.*(7/*.(5 6/3. !4.*(*3. A&3 .&D*4 !4 -(!.!-!36 !4 A2!-2 1)) ( ) &41 /) -2!*=*1 .2* 6/3. !67/(.&4.(*30;.3 ,.2* 7(&-.!-&;3-!*4-*3 >*/>(&725 A&3 &1=&4-*1 <5 .2* 6*430(&F .!/4 /, .2* /6&4 *67!(* &--/67;!32*1 <5 >(!77& &41 .2* *1!,!-*3 *(*-.*1 <5 0>03F .03 >&=* (!3* ./ .2* !43.(0-.!=* A/(D /, 1)+) /4 &(-2!.*-.0(* 8&</0. CN (, '' ; (+ 1 ?+ A 8$C"$$U 9

41*(.2* !4,;0*4-* /, .2* 3-2//;3 /, (2*./(!- 8A2!-2 2&1 <*-/6* /4* /, .2* 6/3. !67/(.&4. 6*&43 /, *10-&.!/49 </.2 .2* 7/*.!-&41 .2* 7(/3* ;!.*(&.0(* /, .2!3 *7/-2 32/A & .*41*4-5 ./ .2* (2*./(!-&; &41 1*-;&6&./(5 3.5;/ /.2 &;!D* *4"* 1*&=/4. ./ 7(/10-* *,,*-.' <5 A2&.' !3 !4.*(*3.!4> &41 4/=*;' (&.2*(.2&4 ./ >!=* 7;*&30(* <5 *;*>&4-* &41 .&3.* /*.(5 <*-&6* (2*./(!-&; &41 7(/3* 7/*.!- >//1;5 &((&5 /, 7/*.!- A/(D3 2&3 -/6*F 1/A4 ./ 03 ,(6 .2!3 7*(!/1 7!-* !3 (*F 7(*3*4.*1 !4 !.3 1!1&-.!- <(&4-2 <5 @ &4 A() 81!*1 $T &41 .2*7/*.3 A2/6 A*D4/A&3 0 A7A) &41 -;<;03 &2 *O " &</0. UV !F !7 !.3 2!3./(!-) (81!*1 ?V9 &41 ! ;03 A A") 81!*1 N9 !4 !.3 2*(/!- <5 ,! ; ( ) 81!*1 B &</0. TN9 &41 $ A) 81!*1 T? A2/ !3 &;3/ .2* 6/3. *6!4*4. ; ((!/ A(!.*(0-/;!- 7/*.(5 !3 (*7(*3*4.*1 <5 ") ;03 !- 03 8&</0. V? 2* 3&.!(!- 7/*.(5 /, /(&-* A& -/4.!40*1 <5 A) 81!*1 ?@9 &41 3) + 81!*1 &</0. 9

' 4*A' D!41' /,' ;!.*(&.0(*' !4' .2*' ,/(6' /,' 7/*.!-',&<;*3' A&3' !4.(/10-*1' !4./';!.*(&.0(*' <5' N' 81!*1' &</0.'CN9' &41' 0 ' 81!*1' $N@ g' *;&</(&.*1' .2*' *7!>(&6' &3' &4' !41*7*41*4.' <(&4-2' /,' 7/*.(5' 2*' .(&>*1!*3' /,' ,!O,! ' 81!*1' ?V' ' &(*' 4/.' !4.*41*1',/(' .2*' 3.&>*' /4' A2!-2' 6!6*3' &41' 7&4./6!6*3' &;/4*' </(*'3A&5' <0.' &(*'3!6 7;5' 1*-;&6&./(5'*0*(-!3*3' 2*' 6 /3.'!6 7/(.&4.' 7(/3*' A(!.*(3' /,' .2*' .!6*' &(*' .2*' 3&6*' *4*-&' A2/' -/6 7/3*1' 406*(/03' 72!;/3/F 72!-&;'.(*&.!3*3' ,! ;!3' 81!*1' ?U9' A!.2' 2!3' 3&.!(!-&;' 4/=*;' .2*' ' *' 81!*1' UT9' A!.2' 2!3' >!>&4.!-' &.0(&;' !3./(5' T ' 81!*1' &</0.' $$R9' A2/' !4' 2!3' ." I' 3/0>2.' ./' -&03*' &' (*F &-.!/4' ./' .2*' /;1' 6/1*;3' !4' /(&./(5' .2*' >(*&.' 2!3./(!&4' (F $ 81!*1' &</0.' $@N9' &41' .2*' *) ' *' 81!*1' &</0.' $$C' g' A!.2' 2!3' *..*(3' &41' .2*' &4*>5(!-' /4' B&K6!' .2*' 7&..*(4' /,' .2*' ;&.*(' &4*F >5(!-3' *3!1*' .2*3*' 6 03.' <*' 6*4.!/4*1' .2*' A(!.*(3' /,' (*3*&(-2' 1) ' !. '" -.; ' &41' ! ,*403' 0 #A&) ' 8</.2' &</0.' N9' 0 !03' -)=)' 8&</0.'CN9' A) ' 81!B' &</0.'$NC9' A2/' A&3' &;3/' &4' &-.!=*' -/4.(!<0./(' ./' .*!B!-&;';!.*(&.0(*' .2*' >*/F >(&72*(' / !03' 0 ' 8&</0.' CN9' .2*' 7253!-!&43' ") ' 8&</0.' N9' &41' $"-A' '5) ') ' 8&</0.' CV9' .2*' A(!.*(' /4' 203<&41(5' "]J %& ' 8&</0.' ?V9' .2*' >(&6 6&(!&4' - &&) ' AE2& 5 '8&</0.'VN9' .2*' .*0.0&;' -(!.!-' J') ' 8&</0.' ?V9' &41' .2*' -/6 6*4.&./(' 3- !0 ' A) ' 81!*1 RR' 9

' ' ' +(' ;' ' "' ' 5 " A ' "' 8$$U' g' ' (' <(' " :

,' .2*' 406*(/03' 7/*.3' /,' .2!3' 7*(!/1' /4;5' &',*A' &41' .2/3*' <*;/4>!4>'./' .2*' ;&.*(' .!6*' &(*' /,' 37*-!&;' !4.*(*3.' 1') J) ' 8C.2' -*4.0(59' 5) ' &P) ' - A(' ,03' 8V;2' -*4.0(59' 4' ;!.*(&.0(*' ,(/6' .2*' .!6*' /,' &1(!&4' K0(!37(01*4-*' .&D*3' &' 7(/6!4*4.'7/3!.!/4' .'A&3' 6&!4;5' (*7(*3*4.*1' <5' @) ' % ' &41')) ' 8@41' ./' (1' -*4.0(59' &41' & 6&>4!,!-*4.' /67;*.!/4' &3' >!=*4' ./' .2*!(' ;&</0(3' <5' .2*' $ ' ' $ ' -/6F 7!;*1' 041*(' 03.!4!&4' ' 8?.2' -*4.0(59' 6/4>' .2*' /6&43' .2*5' &77*&(' ./' 2&=*' ,03.' -/6*' !4./'=/>0*' &;/4>'A!.2' .2*' /.2*(';000(!*3' /,' 3!&',.*(' .2*=!-./(5' /=*(' .2*' 5(!&4' D!4>' 4.; -203' .2*' (*&.'.' ('$TN9' 2*5' A*(*' ! 03*1' 7(!4-!7&;;5' !4' .2*' -/04.(5' &41' 07/4' YK/0(4*53' 3' !4' 8 (**-*' 3/' !4' B 6 * ' A2*(*' K 1(!=!4>'A&3'/4;5'*0-*7.!/4&;;5'&;;/A*1'& ' " '@9' .2*!(' 03*' A&3' &.',!(3.'-/4,!4*1' ./' !4=&;!13' &41' A/6*4' <0.' A2*4' 6*4

' ' 1 ' 8 (1' &41' C.2' -*4.0(!*39' 3) ') ' ' % ' 1 (') ' 5 A) ' *. !' &(*' /4;5' *7!./6!Q*(3' (/6'.2*' C.2'-*4.0(5'/4A&(13' .2*' !4,;0*4-*' /,' 2(!3.!&4!.5' 6&1*' !.3*;',';.'!4'.2!3' 30<F K*-.' &3' A!.2' ,-!03' &41' 5) ' 4' .2*' @41' -*4.0(5' 75 '>&=*' &' 4*A' 1!(*-F .!/4'./' /(&./(5'<5' (*=*(.!4>'./' .2*' A(!.*(3' /,' .2*' &(-2&!-' *(&' 4' .2!3' 2*' A&3',/;;/A*1' <5' .2*' (2*./(!-!&4' % A) ' .2*' A(!.*(' /,' &' 206/(/03' &41',&4-!,0;'4/=*;' /,' -2&(&-.*(' /4*' /,' .2*' 6 /3.' !4.*(*3.!4>'7(/10-.3' /,' .2*' 7*(!/1' &0;' A&3',(/6' .2*' *41' /,' .2*' (1' -*4.0!5' .2*' 2*&1:0&(.*(3' /,' /(&./(5' !4' A2!-2' .2*' 7&4*>5(!-' 3.5;*' 7(*1/6!4&.*3' &3' !4' .2*' -/;;*-.!/4' -&;;*1' .2*' , " 1 ' ; " ' &41' !4' $*0& ( ) ' 8*41' /,' C.2' -*4.0(59' A2/' &3' A*;;' &3' $ % A%$ A' ' 8V.2' -*4.0(59' !3' &;3/' D4/A4' <5' 2!3' ;*..*(3' *3!1*3' 0*./4!03' &;(*&15'4&6*1' >(&6 6&(' ,/041' ..6*(/03' =/.&(!*3' A2/' A*(*' 2/A*=*(' 6/(*' (*6&(D&<;*' &3' Q*&;/03' -/6 7!;*(3' .2&4' &3' /(!>!4&;' !4=*3.!>&./(3' @) ' 8@41' -*4.0(59') ' 8 (1' -*4F .0(59') " A A) ' /A5& ' !6=!03'8C.2' -*4.0(59' (/38V.2' -*4F .0(59' &41' ('8&</0.' NDD' '6&5' <*' -!.*1' /(D3' /4' .2*' *10-&./4&;' -0((!F -0;06'A*(*'A(!..*4'<5'0 %$ " ' 8V.2' -*4.0(59' &41' " A5 5) ' 8?.2' -*4F .0(59' 2*' &</=*"6*4./4*1' 70;*!03' &41' &;3/' ?5? A) '8?.2' -*4.0(59'&(*' A/(.25'/,' 6*4./4' &3' 72!;/3/72!-' A(!.*(3' 3' (*7(*F 3*4.&.!=*3' ' /.2*(' 30<K*-.3' 6&5' <*' &110-*1' " $5-A) ' 8 (1' -*4.0(59' &41' '&A() ' 0 ?) ' 8C.2' -*4.0(59' ,/(' &3.(/;/>5' 1? ? A) '-? ,A) ' 8C.2' -*4.0(59' ,/(' .&-F .!-3' A) ' 8C.2' -*4.0(59' ,/(' 203<&4F 1(5' ' 0 !! ! '&41' 0 ( ) ' & A?A() ' 8V.2' -*4.0(59',/(' 6*1!-!4* !.. (&./(' 2*' /6&4'1*3!>4&.!/4',' &4' *;*6*4.&(5'!43.(0-./(' # ' ') (' I !..?(J.43' 2*' /6&4' .*(6',/(' .2*' .*&-2*(' A2/'!67&(.*1' .2*' 2!>2*(' <(&4-2*3' /,' D4/A;*1>*' 8 0*./4!03' 5 ' T ' `` C']@9 !..*(3' 6' &4-!*4.' (**-*' A*(*',/(' .2*' 6/3.' 7&(.' 03*1' /4;5',/(' .2*' -/4=*5&4-*' /,' 3!-D' 7*/7;*' &41' A/6*4' !4' /.2*(' -&3*3' .2*!(' 03*' &3' (*>&(1*1'&3'&;000(5' 6/4>' .2*' /6&43' .2*5' &77*&(' ./' 2&=*' ,03.' -/6*' !4./'=/>0*' &;/4>'A!.2' .2*' /.2*(';000(!*3' /,' 3!&',.*(' .2*=!-./(5' /=*(' .2*' 5(!&4' D!4>' 4.; -203' .2*' (*&.'.' ('$TN9' 2*5' A*(*' ! 03*1' 7(!4-!7&;;5' !4' .2*' -/04.(5' &41' 07/4' YK/0(4*53' 3' !4' 8 (**-*' 3/' !4' B 6 * ' A2*(*' K 1(!=!4>'A&3'/4;5'*0-*7.!/4&;;5'&;;/A*1'& ' " '@9' .2*!(' 03*' A&3' &.',!(3.'-/4,!4*1' ./' !4=&;!13' &41' A/6*4' <0.' A2*4' 6*4

&;3/ <*>&4 ./ 03* .2*6 !4 .2* ./A4a .2*5 ,/(6*1 !4 .2* ,!(3. !43.&4-* <7(!=!;*>* /, -*(.&!4 -;&33*3 04.!; !4 .2* -/&(3* /, .2* !67*(!&; .!6* .2*5 -&6* !4./ >*4*(&; 03* A/ D!413 A*(* 1!3.!4>0!32*1 8$9 .2* (*3*6<;!4> &" &1&7.*1 ,/(;5!4> 1/A4 .2!3 A&3 &2/6*A/(D 37&44*1 <5 >!(.23 &41 A!.2 &</;3.*(&41 7!;;/A &41 8@9 .2* &3*1&4 -2&!(,/(/4* /(.A/ 7*(3/43 A2!-2 A&3 03*1 7&(F .!-0;&(;5 <5 .2* *67*(/!3 &41 G < /.2 D!413 A*(* 7(/=!1*1 A!.2 &4 &(-2*1 -/=*(!4> A2!-2 -/0;1 <* -;/3*1 07 *=*4 &. .2* 3!1*3 <5 6*&43 /, -0(.&!43 /(A!41/A3 6&1* /, .2!4 7;&.*3 /, .&;- 2 0= !=$!!!@C@g 2* ;!..*(A&3 -&((!*1 07/4 7/;*3 A2!-2 A*(* *!.2*(;/A &41 .2*(*,/(*204> !4 3.(&73 /(*;3* (*3.*1 07/4 .2* 32/0;1*(3/, .2* <*&(*(3 A2/ A*(* .A/ ,/0(3!O &41 *=*4 *!>2. &--/(1!4> ./ !.3 3!Q* 4 1!3.!4>0!32*1 2/03*3 37*-!&; 3;&=*3 & /,7&(.!-0;&(;5 7/A*(,0; </1!;5 ,(&6* !4 ;&.*(.!6*3 *37*-!&;;5 &77&F 1/-!&43 A*(* D*7. ,/(.2!3 70(7/3* .2*3* 03*1 ./A*&(&(*1 ;!=*(5 /(.2/3* A2/ -/0;1 4/. &,,/(1 .2* *07*43* /, &A(K=&.* ;!..*(.2*(* A*(* &;3/ 2&-D";!..*(3 4 .2* ;&.*(!67*(!&; .!6* &;!..*(<&!;*1 &(+" -&6* !4./ ,&32!/4 A2!-2 A&3 -&((!*1 <5 .A/ 60;*3 !4 32&,.3 <*,/(* &41 <*2!41 !.0(>!&) ;.203 8$9 2* /6&4 .*(6 ,/(.2* &0>0(3 A&41 .A&3 &3.&,, 2//D*1 &. .2* 77*(*41 A!.2 !. .2* &0>0(6&(D*1 /0. .2* 3&-(*1 (*>!/4 # ,/(.2* /<3*(=&.!/4 /, <!(13 83** -0. &41) .I 2* 3!>4&;".(067*. /, .2* -&=&;(5 D <*4. &. .2* ;/A*(*41 !. A&3 <;/A4 <5 .2* "&41 *61..*1 &-;*&(32(!;;4/.*8-7) !=,43 8$9 ;) " "? .2*,/04F 1*(/, /6&4 *7!- &41 1(&6&.!- 7/*.(5 *A&3 <5 <!(.2 &((**D /, /0.2*(4 .&;5 &41 A&3 <(/0>2. &3 &3;&=* ./ /6* &,.*(.2* -/4:0*3./, &(*4.06 !4 @U@ A2!;* 3.!;; /, .*41*(&>* !3 6&3.*(& !=!03 A2/3* 4&6* 2* <*&(3 >&=* 2!6 2!3 ;!<*(.5 &41 2* !67&(.*1 !43.(0-.!/4 !4 .2* (**D &41 &.!4 ;&4>0&>*3 2!3 *67;/56*4.7(/<&<;5 >&=* /--&3!/4 ,/(2!3 .(&43;&.!/4 /, .2* /6*(!- 1533*5 !4./ &.0(4!&4 6*.(*" !4 37!.* /, !.3 !67*(,*-.!/43 .2!3 (*6&!4*1 & 3-2//;"</D !4 /6* ,/(-*4F .0(!*3 4 @CN 2* <(/0>2. /4 .2* /6&4 3.&>* .2* ,!(3. 1(&6& -/67/3*1 ,.*((**D 6/1*; &41 A!.2 30-2 30--*33 .2&. .2*4-*,/(A&(1 1(&.&&.!- 7/*.(5 A&3 A*;; *3.&<;!32*1 !4 /6* --/(1!4> ./ &4-!*4. -03./6 2* &77*&(*1 &3 &4 &-./(!4 2!3 A4 7!*-*3 !3 1(&6&.!-/67/3!.!/43 .(&>*1!*3 &41 -/6*1!*3 A*(* ,&!.2,0; <0. 041/0<.*1;5 !67*(,*-.(&43;&.!/43 /, (**D /(!>!4&;3 *&..*67.*1;5(!-7/*.(5 &;3/ ,/(2* A&3 -/66!33!/4*1 <5 .2* .&.*./ A(!.* &6&(-2 !4 2/4/0(/, 7 1 " -&4.5 (*6&!43 /, 2!3 A/(D3 &(* &;; .2&. 2&=* -/6*1/A4 ./ 03 8@9 # $ .2* -*;*<(&.*1 /6&4 2!3./(!&4 A&3 </(4 &. &. =;06 8VT 9 &77&(*4.;5 /, >//1 ,&6!;5 *" A&3 -&(*F ,0;;5 *10-&.*1 &41 <*.//D 2!63*;, *&(;5 8-*(. !4;5 <*,/(* $ 9./ /6**A2*(* 2* 3//4 <*-&6* &-:0&!4.*1 A!.2 .2* 6/3. 1!3F .!4>0!32*1 6*4 /, .2* !6** =*4 0>03.03 *4.*(.&!4*1 ,(!*41;5 (*;&.!/43 ./A&(13 2!6 !4 7!.* /, 2!3 /7*4;5 *07(*33*1 (*70<;!-&4 -/4=!-./43 ,/(A2!-2 2* -&;;*1 2!6 & 7&(.!3&4 /, /6 7*5 *" 1/*3 4/.3** 6 ./ 2&=* .&D*4 70<;!- /,,!-* <0. ./ 2&=* ;!=*1 *0-;03!=*;5 ,/(;!.*(&.0(* 3.** 6*1 <5 2!3 -/4.*677(&(!B 2* 1!*1 !4 2!3 4&.!=* ./A4 !4 $U 6 03. 2&=* <*>04 2!3 >(*&. 2!3./(!-&; A/(D <*.A**4 @U &41 @V !.-&4 /4;5 2&=* <**4 -/67;*.*1 32/(.;5 <*,/(* 2!3 1*&.2 &3 2* 1!1 4/. 70<;!32 .2* ,!(3. *4.5"/4* </D3 04.!; &,.*(.2* 1*&.2 /, 0>03.03 8$C * (*-/04.3 .2* 2!3./(5 /, /6* !4 $C@ </D3 *0.*41!4>,(/6 .2* ,/041&.!/4 /, .2* -!.5 8A2*4-* .2* .!.;* $" = ./ .2* 1<&.2 /, (0303 8T !3 /A4 1*&.2 603. 2&=* 7(*=*4.*1 !.3 -/4.!40&.!/4 ./ .2* 1*&.2 /, 0>03.03 &3 2* 1/0<.;*33 7(/7/3*1)70<;!32*1 2!3 A/(D (/6 .!6* ./ .!6* !4 3*7&(&.* 7&(.3 *" &((&4>*1 2!3 6&.*(!&; [&3 ,&(&3 7/33!<;* !4 1*-&13 87/(.!/43 -/43!3.!4> /, .*4 </D39 &41 <&;,"1*-&13 .2* 1!=!3!/4 !4./ 1*-&13 A&3 2/A*=*(,!(3.-&((!*1 .2!(/0>2 !4 .2* V.2 -*4.0(5 7(/<F &<;5 ,/(-/4=*4!*4-* /, 2&41;!4> 3/ =&3. &3*(!*3 /, </D3 2*(* 3.!;; (*6&!4 /4;5 .2* ,!(3. 1**&1 8./ @T 9 .2* .2!(1 ,/(.2 &41 2&;, /, .2*" ,!,.2 1*-&1 8@$R" $?U9" /, .2* (*6&!41*(A!.2 .2* *0-*7.!/4 /, &, &!(;5 ;&(>* 7/(.!/4 /, </D T$ /4;5 !4-/43!1*(&<;*,(&>6*4.3 *&;3/ 7/33)33" ,(/6&4 04D4/A4 7*4 306&(!*3& (/, &;; .2* </D3 *0-*7. $? &41 $ U &41 &3-&4.5 *0.(&-.,(/6 .2* &--/04. /, .2* 7/(.*4.3 # 1 A2!-2 &77*&(*1 !4 @CT &41 ,/;;/A!4> 5*&(" .2!3 !3 <5 &-*(.&!4;0;!03 <3<:0*43 &41 7*(2&73 1&.*3 ,(/6 .2* C.2 -*4.0(5 !=5 3 !67/(.&4-* (*3.3 6/(* /4 .2* 6&>4!.01* /, 2!3 7&.(!/.!- 41*(.&D!4> &41

!!2*' 3.5;*' /,' 2!3' 4&((&.!=*' .4&4' 07/4' 0!3'
.2/(/0>24*33' &3' &' 2!3./(!-' !4:0!(*(' !3'
7(*;!6!4&(5' 3.01!*3' A*(*' !4&1*:0&.*' &41'
2!3' D4/A;*1>*' /,' /6&4';&A'361'3.!;;' 6/(*'
X/,' .2*' 6!;!.&(5' 353.*6' /,' /6*' A&3' !4F
30,,!-!*4.' *' A&3' -/4.*4.' ./' 3*;*-.' A2&.'
B3**6*1' ./' 2!6' .2*' 6/3.' 7(/<&<;*' &41'
(*&3/4&<;*' 3.&.*6*4.',(/6' .2*' &0.2/(!.!*3'
2!-2' 2&77*4*1' ./' <*' ,&6!;!&(' &41' &--*3"
,3!<;*' ./' 2!6' A!.2/0.'(*>&(1'./'-/67;*.*4*33'
&41' A!.2/0.' 3*=*(*;5' 3-(0.!4!3!4>' .2*!('
=&;0* [&' 6*.2/1' A2!-2' 4*-*33&(!;5';*1' ./'
406*(/03' !4&--0(&-!*3' &41' 3*(!/03' *(((/(3'
(!6&(!;h"' 2!3' >(*&.' &!6' A&3' 4/.' -(!.!-&;'
(*3*&(-2' !4./' .2*' 2!3./(5' /,' 2!3' -/04.(5'
*' 1*3!(*1'(&.2*('<5' &' ;!=*;5' &41'<(!;;!&4.'
4&((&.!=*' A2!-2' 32/0;1' 3&.!3,5' .2*' 6/(*'
O&-.!4>' .&3.' /,' .2*' .!6*' ./'(*D!41;*' .2*'
&>>!4>'7&.(!/.!36'/,' 2!3'-/04.(56*4' &41'
./'(&!3*'g03'7/;!.!-&;;5'&41'3/-!&;;5'1*>(&1*1'
G-/4.*67/(&(!*3'./' .2*';*=*.;' /,' .2*!('&4-*3F
./(3' *07;/!.3' 41' 2!3' 4&((&.!=*' !4',&-.'
G1*3*(=*3' .2*' ,0;;*3.' &16!(&.!/4' *37*-!&;;5'
,/('!.3'1*3-(!7.!/43'/,' *=*4.3'&41'.2*'&-./(3'
!4' .2*6' &41' ,/(' .2*' 37**-2*3' A2!-2' &(*'
!43*(.*1'!4'.2*' A/(D' 2*';&..*(' 32/A'2!3'
(2*./(!-&;' .(&!4!4>' !4' &;;' !.3' <(!;;!&4-*'
!3' ;&4>0&>*' !3' -2/!-*' &41' .&3.*,0;'
&;.2/0>2' !4'1*.&!;3'!.' 6&(D3'&'1*-;!4*',(/6'
.2*' 3.(!-.;5' -;&33!-&;' 3.&41&(1' 3!4!03'
/;;!/' !4' &;;03!/4' ./' .2*' &0.2/(3' <!(.2F
7;&-*' -2&(>*1'!.' A!.2' &' -*(.&!4' 2'
" ' 2!3' -&4' /4;5' 6*&4' &' 7(/=!4-!&;'
%1*7&(.0(*' ,(/6' .2*' 7*-0;!&(' ;&4>0&>*' /,'
.2*' 6*.(/7/!3' A2!-2' !3' ./' 03' 4/' ;/4>*('
7*(-*7.!<;*' !=5 3' A/(D' *4K/5*1' .2*'
B>(*&.*3.'(*4/A4'1/A4'./' .2*';&.*3.'1&53'/,'
/6&4';!.*(&.0(*' &41' 2&3' <**4' .2*' >(*&.'
6!4*' /,' !4,/(6&.!/4',/(' D4/A;*1>*' /,' .2*'
7&3.'./' &;;' 30--**1!4>'>*4*(&.!/43
1/2B13'&6 ' 2*' -/66&41*(' /,' &
' ('& ' B
1-213' 2*' (**D'1*3!>4&.!/4',&!</15'
/,',//.' 3/;1!*(3' 6/4>' .2*' 7&(.&43'!.'
1*4/.*1'!4'*&(;5'.!6*3'.2*';&(>*3.'1!=!3!/43'
!4./'A2!:2'.2*'A2/;*'7/70;&.!/4'-&7&<;*'/,'
<*&(!4>'&(63'A&3'>(/(6*1' &-2' /,'.2*3*'
P&--/(1!4>'./' 20-51!1*3'='?R' '??g'-/6F
7(!3*1',/0(' " : /,',/0(' "
&-2'f&4'&"6 M'-/4.&!4!4>'/4'&4'&=(&>*'
.2!(.5".A/'6*4h' 2*' 4&6*' &;3/' 1*4/.*1'
.2*' !41!=!10&;3'-/67(!3*1'.2*(*!4' ;&.*('
f]*4/72/4'7 ' '!!'Cg'!.'A&3'.2*'4&6*'
/,'.2*',/0(' 30<"1!=!3!/43'/,'&' 6<(&& '
4' (**D'6*(-*4&(5'.(//73'&' ('A&3'
&'-/67&45'/,' $NN'6*4'041*(' &' 3*7&(&.*'
-/66&41*(' *=*(&;' /,' .2*3*' -/67&4!*3'
A*(*'04!.*1'041*(' .2*'307*(!/(' -/66&41'/,'
&' 1 '&

!1>*!14'8H'37*&D!4>"7;&-*'!9'&-*' '
?>!3.+' 8H &01!./(3' /,' &--/04.3!9' 2*'
4&6*'>!=*4'&.' .2*43'./'&'</&(1'-/43!3.!4>'
/(!>!4&;;5' /,' .2!(.5' 30<3*:0*4.;5' /,' .*4'
6*4!<*(3'A2/'!4'-/4K04-.!/4'A!.2'&4/.2*('
</&(1'.2*' .*4' (:" ' &41' .2*!('.A*4.5'
&33*33/(3' (*-*!=*1' ,(/6' 6&>!3.(&.*3' &.'
.2*' *07!(5' /,' .2*!(' .*(6' /,' /,,!-*' .2*'
&--/04.3' /,' .2*!(' &16!4!3.(&.!/4' & '
) * ' 2!3'b=&3*37*-!&;;5'!67/(.&4.'
A!.2' .2/3*' 6&>!3.(&.*3' .2(/0>2' A2/3*'
2&413'70<;!-' 6/4*5' 7&33*1' /.2' </&(13'
A*(*'/(!>!4&;;5'-2/3*4'<5'32/0.'/,'2&413'
;&.*('<5';/.' 4*' 6*6<*('A&3'*;*-.*1',(/6'
&-2' ('.2' &33*33/(3' /,' .2*' (:"
A*(*'&77/!4.*1'<5',(*'-2/!-*' 2*' 1 '
A*(*'.2*'307(*6*'&0.2/(!.5'./' A2/6'/0.F
>/!4>'6&>!3.(&.*3'30<6!..*1'.2*!('&--/04.3'
2*' (:" ' *0&6!4*1'.2*' 3*=*(&;' 1*.&!;3'
4/.!,!*1' A2*4' 4*-*B(5' .2/3*' A2/'A*(*'
;!&<;*' &41' (*.0(4*1' .2*' &--/04.3' ./' .2*'
1 ' A!.2' &' (*7/(./' /4' .2*!(' 6*(!.3'
&>!3.(&.*3'A2/' 2&1' 4/.2!4>' ./' 1/' A!.2'
70<;!-' 6/4*5' /4;5' >&=*' &4' &330(&4-*' ./'
.2*' 1 '.2&.'.2*5'2&1'(*-*!=*1'&41'7&!1'
4/.2!4>' ,' .2*' &--/04.3' A*(*' &77(/=*1'
&41'4/'-2&(>*'A&3'<(/0>2.'&,.*(' .2*' 70<;!-'
7(/-;&6&.!/4'<5'.2*' 1 '.2*5' >&=*' .2*'
6&>!3.(&.*' 2!3' 1!3-2&(>*' 4' .2*' /.2*('
&;.*(4&.!=*' .2*5'(*,*((*1'.2*'-&3*' ./'&'-/(.'
/,'K03.!-*' !4' A2!-2' .2*5' A*(*' .2*63*;=*3'
7(*3!1*4.3' 2*'7(/3*-0.!/4'A&3'*4.(03.*1'
./' .*4' (1 '/(' -/043*;',/(' .2*' .&.*'
A2/'A*(*'-2/3*4'<5';/.'&41'3&.'A!.2' .2*'
1 ' 2*' ,!4&;' 1*-!3!/4' (*3.*1' A!.2' .2*'
.2*' *;!&3.!-/0(.' & '
!!B1>(J72!'8 (' =I1/1& ('!*'A(!.*(3'
!4' 7(/3*9' 2*' 4&6*'>!=*4'./' .2*' /;1*3.'
(**D' 2!3./(!&43'A2/' <5' .2*!(',!(3.' &.F
.*67.3'&.'1!3:0!3!.!/43'!4'7(/3*' 6&(D*1'.2*'
.(&43!.!/4',(/6' 4&((&.!=*' 7/*.(5'./' 7(/3*'
2!3./(5' 3' !4' .2*'-&3*' /,' *7!-'7/*.(5'3/'
.2*3*' *&(;!*3.' 2!3./(!-&;' A(!.!4>3' *6&4&.*1'
,(/6' /4!&' A2*(*'.2*',!(3.'&..*67.3'&.'&4'
07/3!.!/4'/,'72!;/3/72!-'(,;*0!/43'!4'7(/3*'
A*(*' 6&1*' &.' &</0.' .2*' 3&6*' .!6*' <5'
2 (`-51 3' 4&0!6&41*('&41' 4&0!6*4*3*'
&41'!4' </.2' -&3*3' 4,!D*'!.'A&3'.2*' /4!-'
1!&;*-.' .2&.' &3'03*1' 2!3'-;&33/,'A(!.F
!4>' ;/4>' 7(*3*(=*1' !4' !.3' ;&4>0&>*' .2*'
7/*.!-' -2&(&-.*(' A2!-2' !.' !42*(!.*1',(/6'
.3' /(!>!4' !4' .2*' *7!-' 4&((&.!=*' .' A&3'
/4;5'<5'1*>(**3'.2&.!.'&77(/&-2*1'.2*'./4*'
/,'.(0*'7(3*' .'-/4,!4*1'!.3*;'&<3/;0.*;5'
./' .2*' 3!67;*' .*;;!4>' /,' !.3' 3./(5' A2!-2'
A&3' ;&(>*;5' 6&1*' 07' /,' ,&6!;5' &41' ;/-&;'
.(&1!.!/43' .'4*=*(' -;&33!,!*1'!.3' 6&.*(!&;3'
,(/6' &' 6/(*' *;*=&.*1' 7/!4.' /,' =!*A' /('
3-(0.!4!3*1'.2*6'A!.2'-(!.!-&;'&-06*4' 2*

;/>/>(&72*(3 ,;/0(!32*1 ,(/6 &</0 VVN " 1/A4 ./ .2* *(3!&4 &(3 2*!(;&.*3. (*7(*3*4.&.!=*3 *0.*41 2/A*=*(1/A4 ./ .2* .!6* /,.2* *;/7/44*3!&4 &(2*4 .(0* 2!3./(5 &(/3* A!.2 *(?1?.03 .2*5 3//4 ;&73*1 !4./ /<;!=!/4 A2*4-* .2*5 A*(* (*3-0*1 !4 ;*0&41(!&4 1&53 &45 /, .2* A/(D3 &3-(!<*1 ./ .2*6 A*(* 2/A*=*(<*;!*=*1 ./ <* 370(!/03 /(&. ;*&3. !4.*(F 7/;&.*1 * 7/33*33 ,(&>6*4.3 /4;5 /, &' ,*A 2* ;&(>*(406<*(/, .2* 2!3./(!-A(!.*(3 A2/ &(* 1*3-(!<*1 &3 ;/>/>(&72*(3 A*(* 3!&.!- (**D3 1 " &) /, !;*F .03 &0.2/(/, &' 2!3./(5 /, .2*,/041!4> /, !;*.03 &41 .2* -/;/4!Q&.!/4 /, /4!&' 82* ;!=*1 &</0 VCN " (&41 A&3 -/43!1*(*1 .2*,!(3. A(!.*(/, 2!3./(!-7(/3*9 ,0(.2*(CJ * C) /, !;*.03 &' A(!.*(/, *(3!&4 2!3./(5 9 J 8>) g , !;*.03 8?VN" CU?9 7) /, &(1!38&</0 CT?9 &' A(!.*(/, 51!&4 2!3./(5 / A" $ 8> = g /, *3</3 8&</0 CRN"CNN9 " 5 /, &6" 73C-03 8&</0 CV?9 &' -/67!;*(/, *(3!&4 2!3./(5 &41&44&;3 /,2!3 4&.!=*./A4 $ $ J /, .2* &(!&4 !3;&41 (13 81!*1 &</0 CNN (A2/ ;!=*1 &. .2*43 &41 !4 2!3 >(*&. /;;*-.!/4 /, ;&5.23 !4 .*4 </!D3 .(*&.*1 -2!*,;5 /, .2* *&(;5 1&53 /, ..!-& /6* <*;/4>*1 ./ .2* -/;/4!*3 !4 .2* *3. 1 / * /, 2*>!06 &. .2* .!6* /, .2* *(3!&4 &(.2* /;1*3. A(!.*(/4 !-!;5 &41 .&;5 2* /4;5 (*7(*3*4.&.!=* ,(/6 (**-* !.3*;, !3 () A % , (>/3 !4 /*/.!& .2* &0.2/(/,'&>*4*&;/>!-&; A/(D /4>!403 #$ (**D(2*./(!-!&4 </(4&. .2*43 &</0 @$ A2/ 3.01!*1 */7;&./4!36 &. ;*0&41(!& &41 7(&-.!3*1 &3 .*&-2*(/, 72!;/3/725 >(&66&(W ;!.*(&(5 -(!.!-!36g &41 (2*./(!- !4 2!3 4&.!=* -!.5 ,(/6 &</0 @?N 04.!; .2* &--/67;!32*1 :0**4 L*4 <!& /, &;65(& 3066/4*1 2!6 &3 6!4!3.*(./ 2*(-/0(. 3 2* 7*(30&1*1 2*(./ (*3!3. .2* /6&4 5/D* .2* *67*(/(0(*;!&4 -&03*1 2!6 ./ <* *0*-0.*1 &,.*(L*4/<!&3 /=*(.2(/A !4 %@U * *7/33*33*1 30-2 &4 *0.*4./,';*&(4F !4> .2&. 04C7!03 -&;;*1 2!6 &' ;!=!4> ;!<(&(5 &41 &' A&;D!4> 603*06 !3 =*(F 3&.!;!.5 !3 7(/=*1 <5 -/67/3!.!/43 /4 72!;/F 3/725 >(&66&((2*./(!- -2(/4/;/>5 &41 ;!.*(&.0(* ,.2*3* /4;5 ,(&>6*4.3 &(* *0.&4. ,/(*0&67;* .2* !4.(/10-.!/4 ./ &' -/66*4.&! /4 *723*3.;/43 2&41</D /, 6*.(*3 &41 &'32/(. 2*./(!- !4-/67;*.* &. .2* <*>!44!4> <(!*, .(*&.!3* "* (-/66/4;5 &3-(!<*1 ./ 2!6 !3 6/(* 7(/<&<;5 ./ <* &33!>4*1 ./ &4 04D4/A4 A(!.*(&</0 .2* 2(!3.!&4 *(& .(*&.3 &41 !;;03.(&.*3 <5 -;&33!- *0&67;*3 .2* -2&(&-.*(!3.!-3 /, .2* ;/,.5 3.5;* ,(/6 & 2!;/3/72!-&;' &41 &*3.2*.!- 7/!4. /, =!*A .!3 A(!..*4 !4 &' =!>/(/03 6&44*(/4>43 A2/ 7(/<&<;5 ;!=*1 !4 .2* (1 *4.0(5 A&3 .2* &0.2/(/, & (**D 7&3./(&; (/6&4-* 5 (" " $(!4 ,/0(</!D3 .!3 -/43!1*(*1 .2* <*3./, &;; &4-!*4. (/6&4-*3 A2!-2 2&=* -/6* 1/A4 ./ 03 /4 &--/04./, !.3 1**7 &41 4&.0(&; ,**;!4> !.3 >(&-* /, 4&((&.!=* &41 .2* -/6F 7&(&.!=* 70(!.5 &41 *&3* /, .2* ;&4>0&>* .2&3 /,.*4 <**4 !6!.&.*1 <5 .&;!&4 (*4-2 *(6&4 &41 4>;!32 A(!.*(3 f 2* (&(* .(&43;&.!/4 <5 /24 &5 /, .2* (*4-2 =*(3!/4 /, 65/.A&3 (*7(!4.*1 !4 $RTN g /(!-& 8$g 2* ;*&.2*(4 -/(3*;*, /, .2* /6&4 ;*>!/4&(5 .-/43!.1 /, .2/4>3 & /, 32/*";*&.2*(,&-*1 A!.2 6*.&; 2*3* A*(* ,&3.*4*1 /4* 07/4 &4/.2*(!4 30-2 &' A&5 .2&. .2*5 ,/(6*1 &' -/=*(!4> ,/(.2* </15 A!.2 .A/ 32/0;1*("7!*-*3 *;/A .2* ;&..*(&' 7;&.* /, !(/4 TW !4-2*3 3:0&(* A&3 7;&-*1 /=*(.2* (*>!/4 /, .2* 2*&(.

8 (-</,' &=*. 9

& -0.9 ,.2* *&(;5-!.!Q*4"3/;1!*(3 .2 6/(* A*&;.25 A/(* &;3/ -/&.3 /, -<&!4" &(6/0(& (. &41 -/(3*;*.3 /, 6&!;' & T !4 A2!-2 .2* K/!4.3" A*(* ,0(.2*(-/=*(*1 A!.2 6*.&; 7;&.*3 .2* ;&..*(A*(* &;3/ A/(4 <5 .2* 7(&*./(!&43 !4 !6 7*(!&;' .!6*3 8@g 2* <(*&3.A/!"D3 /4 A&;;3 &41 /4 (*1/0<.3 /. *-.!/4 <5 B 5== (/.1722>!' 8* * /.03"*&.*(39 7*/7;* /4 .2* 4/(.2 -/&3./, ,(!- 6*4.!/4*1 &3" *&(;5 &3 /6*(% !O RCg 2*5 ;!=*1 /4 .2* ,(0!./, .2*;/.03 &$ % (/=* /1/, 11*33 /, &41 (

4-&4 & " " " / 6 &4 7 *. </(4 T 7 &. /(1/=& !4 7&!4 *' A&3 >(&413/4 / , 4>-J .2*(2*F ./(!-!&4 &41 4*72*A / , *4*-& .2* 72 /"3/72*(*' A&3 <(/0>2. 07 !4 /6*, (/6 .2* ,!(*. 5*&(/ , 2!3 &>* &41 *0-!.*1 &..*4F .!/4 &. &4 *&(;5 1&.* <5 2!3 (2*./(!-&; &41 7/*.!-7/A*(3 4 .2* (*-/6 6*41&.!/4 / , 2!3 04-;* *(/ -/4,*((*1 /4 2!6 .2* :03*3" ./(32!7 A2!;* 5*. 041*(.2* ;*>&; &>* &41 &1 6!..*1 2!6 ./ ,&=/0(2* &77;&03* 2/A*=*(A2!-2 2!3 7/*63 (*-*!=*1 3//4 &(/03*1 .2* K*&;/035 / , .2* *67*(/(A2/ A&3 7&(.!-0;&(;5 -/4-*!.*1 &</0. 2!3 /A4 7/*.!- &<!;!.!*3 --/(1!4>;5 2* A&3 ,/(" 9!11*4 ,/(.2* ,0.0(* ./ (*-!.* 2!* 7/*63 4 70<;!- /(./ &77*&(/4 .2* 7;&.,/(6 2!3 !437!(*1 .2* 7/*. A!.2 0-2 &4!6/3!.5 '2&. 2* .//D 7&(. !4 !3/3 -/437!(&-5 2*4 !. A&3 1*.*-.*1 2* 3/0>2. &. ,!(3. 3&=* 2!63*;, <5 .2* 6/3. &<K*-. *+" (*&.!*3 <5 1*4/04-!4> 2!3 ,* /A"-/4F 37!(&./(3 &41 *=*4 <5 ,&;3*;5 &--03!4> 2!3 4/.2*(-!;!& *!4> 4*=*(.2*;*33 -/4" !*64*1 ./ 1!* 2* 2!63*;, -&03*1 2!3 =*!43 '/ <* /7*4*1 &41 .203 7*(!32*1 8?V 9 , 2!3 406*(/03 -/67/3!.!/43 .2* , (2 &4 04,!4!32*1 *7!- !4 .*4 </!D3 !3 30.&4. . !3 &4 &--/04. / , .2* -!=!; A&(<*.A**4 &*3&(&41 /67*5 *0.*41!4> K*5/41 .2* <&..; / , 2&(3&;03 &41 1/A4 '/ .2* -&7.0(* / , ;*0&41(!& . 6&!4" '&!43 30-2 3.(!-. 72(*4/;/>!-&; /(1*(&41 *0&-.!.01* /, 1*.&!; .2&.* !. A&3 &: 0*3" ,!/4 &,.*(2!3 1*&.2 A2*.2*(2* 1*3*(=*1 ./ <* (*-D/4*1 &7/*. &.* &;; f *.(/4!03 $R &41 &. &; ;&.*(1&.* *(=!03 '89 " W R@ $ (51*43 7(*,&-* ./ " " ! : 0/.*1 !4 *!.;&41 3 '" ./ 0-&4 *1 &3D!4 7 0!0 g 0-&4 (*7(*3*4.3 2!63*;, !4 2!3 7/*6 &3 !4 *4.203!&3.!- ;/=*(/ , .2* ;/3. 1&53 / , !<*(.5 &41 !4 .2&. -&7&-!.5 *0./;3 /67*5 / .2* 04K03. 1!37&(&>*6*4. / , &*3&(!3 ;&((&.!=* 1!37;&53 3/6* .&;*4. <0. &;3/ &4 4&<!;!.5 ./ >!=* 2!3 6&.*(!&;3 &6/(* .2&4 &*(*;5 /0.A&(1 7/*.!-&; ,/(6 .!3 6/(*" !=*(.0(>!1 (2*./(!-&; ./ &1*>(** &41 !.3 ;&.2/3 36&-D3 / , 1*-;&6&.!/4 % *6&!43 / , 2* ;!.*(&(5 &-.!=!.5 A2!-2 6&1* 2!6 !.3 <K*-. !4 /;1*4 .!6*3 &(* *0.&4. !4 .A/ -/;" 3*.!/43 / , 3-2/;!& .;- (*3 4* / , .2* .2(** /;1 7&.(!-!&4 1<*3 !4 /6* 8 ** (;!-*6 &8& ;&679 ** 0-!&4 8 "(; " 4* / , .2* 6/3. !.*(*3.K4> / , (** D A(!.*(3 </(4 &</0. @N &. 6 3 .& /4 .2* 072(&.*3 !4 5(!& A!4>. / , .2* 7/=*(.5 / , 2!3 7&(*4.3 2* A&3 &77(*4.!-*1 ./ & 3./4*6&3/4 <0. .2&4D3 . / 2!3 !((*3!3.!<;* *&>*(4*33 , /(2!>2*(-0;.0(* -/4.(!=*1 . /* 1*=/.* 2!63*;, ./ .2* &(. / , (2*./(!- ,.*(7(&-.!3!4> , /(3/6* .!6* &3 &4 &1=/-&.* 2* .(&=*(3*1 (**-* .&;5 &41 /0.2*(4 &0; !4 .2* >0!3* / , & 3/72!3. &41 >&!4*1 *&;.2 &41 (*4/A4 <5 2!3 70<;!-* 1*-;&6&.!/43 4 2!> , /(.!*.2 5*&(2* (*6/=*1 ./ .2*43 ./ 1*=/.* 2!63*;, ./ .2* 3.015 / , 72!;/F 3/725 &41 &..&-2*1 2!63*;, -;/3*;5 ./ .2* ./!- *6/4&0 4 2!3 /;1 &>* .2* 3.&.*" / , 2!3 ,!4&4-*3 -/67*;;*1 2!6 /4-* 6/(* ./ .(&=*; &3" & 7(/,*33!/4&; /(&./(. ;&3. A2*4 ,&(&1=&4-*1 !4 5*&(3 2* &3 >!=*4 &4 !67/(.&4. &41 !4,;0*4.!&; 7/3. !4 .2* &16!4!3.(&./!4 / , K03.!-* !4 >57. .2!3 2* 3**63 ./ 2&=* (*.&!4*1 .!;; 1*&.2

41*(2!3"4&6* A* 3.!;; 7/33*33 6/(* .2&4 *!>2.5 A/(D3 8!4-;01!4> .2(** -/;F ;*-.!/43 / , 3*=*4.5"/4* 32/(.*(1!&;/>0*39 =BB*4.5 / , .2*3* &(* 2/A*=*(*!.2*(-*(F .&!4;5 370(!/03 /(/ , 1/0<.,0; &0.2*4.!-!.5 2*5 1&.* ,(/6 *=*(5 7*(!/1 / , 2!3 ;!,* .2* <*3./&41 -;*=*(*3. ,(/6 .2* .!6* / , 2!3 3/K/0(4 !4 .2*43 2*5 ,&;; !4./ .A/" -;&33*3 (2*./(!-&; &41 3&.!(!-&; ; .2* ;&..*(.2* 6&K/(!.5 &* !4 1(&6&.!-, /4 = (*-&;;!4> !4 1!&;/>0* &41 /0.A&(1 1(*33 .2* ;1 /6*15 / , A2!-2 0-!&4 2&1 & .2/(/0>2 D4/A;B>* &41 ./ A2!-2 2!3" >*4!03 A&3 -;/3*;5 &D!4 2*3* A(!.!4>3 7(*3*4. &4 &16!(&<;* 7!-.0(* / , .2* .*4F 1*4-!*3 &41 .2* &<30(1!.!*3 /, .2* .!6* 4 .2* ,!*;1 /, (*;!>!/4 2* 1!(*-.*1 2!3 6/-D*(5 8*37*/!&;;5 !4 .!,; 5 1 (6 ! &>&!43. .2* .*4*.3 / , .2* 7/70F ;&(*(*;!>!/4 .2* &(.!,!-!&; (*=!=&; / , A2!-2 A&3 &..*67.*1 !4 .2* .!6* / , &1(!&4 &41 .2* 4./4!4*3 ,0(.2*(&..&-D*1 .2*" 7/70;&(*-/4-*7.!/43 / , ;!,* &,.*(1*&.2 !4 .2* 5 1 (5 * &33&!;3 A!.2 37*-!&; <!..*(4*33 .2* 307*(3.!.!/43 A2!-2 2&1 7*4*.(&.*1 ,(/6 .2* &3. "1 A2!-2 2* (*-D/43 !.* !3 .(0* 2(!3F .!&4!.5 <0. A!.2/0. &45 (*&; D4/A;*1>* / , !.3 4&.0(* 4 , 1 " , 2* &..&-D3 653.!-&; *4.203!&36 !4 - " (, (; .2* !67/>./(3 &41 /(&-;*"6/4>*(3 A2/ 7(*5*1 07/4 .2* 307*(F 3.!.!/4 / , .2* .!6* A2!-2 2* 7/(.(&53 !4 & 6&3.*(;5 3.5;* !4 2!3 ; ; ; &41 2!3 + &+ 4/.2*(/<K*-. / , 2!3 3&.!(!-;&4-* A&3 .2* -0((*4. 72!;/3/725 !4 A2!-2 2* 2&1 3/0>2. (*;!*, A2*4 3&.*1 A!.2 (2*./(!- * 2&1 /4;5 ,/041 !4 !. 2/A*=*(& 7*.(!,!*1 1/>6&.!36 & 7&33!/4 ,/(3.(!,* &41 1!370.&.!/4 A!.2 .2* 6/3. &<3/;0.* -/4.(&1!-.!/4 <*.A**4

.2*/(*.!-&;' .*&-2!4>' &41' .2*' 7(&-.!-*' /,' ;!,*' 2!3'"A&3'.(0*' *=*4' /,' .2*' ./!-3' &41' 3.!;;' 6/(*' /,' .2*' 54!-3' A2/3*'G6*&42*33' &41';/=*' /,'7;*&30(*' A2!-2' .2*5' -/4-*&;*1' 041*(' & 7(*.*41*1' &<3*4-*' /,' 7*(3/4&;' A&4.3' 2*' !3' 4*=*(' A*&(5' /,'1*(!1!4>

37*-!&;;5' !43.(0-.!=*' ,/(' 2!3' &..!.01*' ./A&(13' 72!;/3/725' &41' 2!3' >*4*(&;' =!*A' /,';!,*' &(*' .2*' "' ', (('.2*' A ("'8A!.2' 2!3'1*,*4-*' /,' .2*' ;&..*(9' &41'$("' ' (' ' ('M ' ;;' .2*3*'&(*'A/(D3' /,'6&(D*1'&<!;!.5' 2*' ;&3.' 4&6*1' !3' &' <(!;;!&4.' *07/3!.!/4' ,(/6' 2!3'4*>&.!=*'7/!4./,'=!*A'/,' .2*' =&4!.5'/,' &;;' 206&4' *0!3.*4-*' *' *=*4' *07/3*3'2!3' /A4' -;&33' .2*' /72!3.3',/(' &..*67.!4>' ./' -/4-*&;' .2*!(' 6!3*(&<;*'7/=*(.5'/,' !4.*;;*-.' <5' .2*!(' </;1' (*&1!4*33' /,' ./4>0*' &41'<5' .2*!(' 7&.-2A/(D' /,',(&>6*4.&(5':0/.&.!/43' </(((/A*1',(/6' .2*' A(!.*(3' /,' &4.!:0!.5' 4' ,&-.' .2*(*' !3' 3-&(-*;5' &' 3!1*' /,' .2*' ;!.*(&(5'&41'3/-!&;' ;!,*' /,' .2*' .!6*' .2&.' 2*' 1/*3' 4/.' &..&-D' !4' !.3' A*&D'7/!4.3'-/4,!4F !4>' 2!63*;,' 2/A*=*(' ,/(' .2*' 6/3.'7&(.' ./' 1*6/43.(&.!4>' A2&.'/0>2.'4/.'./'<*' A!.2F /0.'32/A!4>'2/A'.2*' *0!3.!4>'*=!;3'A*(*' ./' <*' -0(*1' /' 3!.'!4'K01>6*4.'/4'.2*' ,&;3*' -0;.0(*' &41' A&4.' /,' .&3.*' !4' 2!3' -/4.*6F 7/(&(!*3'2*' A&3' -*(.&!4;5',!..*1'&</=*' &;;' /.2*(3'',/(' &7&(.',(/6' &' A!1*' (&4>*' /,' D4/A;*1>*' 2*' 7/33*33*1'D**4'/<3*(=&.!/4' &41'&4'04030&;' 6*&30(*'/,'A!.'&41'206/0(' *' 2&1' 6/(*/=*(' &4' *0.(&/(1!4&(5'>!,.'/,' !4=*4.!/4' (*6&(D&<;*' &7.!.01*' ,/(' =!=!1' 1*;!4*&.!/4' /,' -2&(&-.*(' &41' &' 3!4>0;&(' >(&-*' &41'*;*>&4-*' 4'37!.*' /,' 2!3' 5(!&4' /(!>!4' 2!3'Q*&;/03'3.015'/,' .2*' <*3.' 6/1*;3' >&=*' 2!6' &' 70(!.5' /,' ;&4>0&>*' A2!-2' ,/(' 2!3' .!6*' !3' (*6&(D&<;*

4- !43' 8$9' ' ;' ',/041*(' /,' /6&4' 3&.!(*' A&3' 7(/<&<;5' </6' $RN' ' &.' 0*33&' 464-&' !4' &67&4!&' /,' &' 8,!3' .!4>0!32*1' &41' A*&;.25' &.!4' *:0*3.(!&4' ,&6!;5' *' &,.*(A&(13' 3*..;*1' !4' /6*' A2*(*' 2!3' &.!4'/(!>!4'*0-;01*1'2!6',(/6' &' 7/;!.!-&;' -&(**(' A!4>'7&(.;5'2/A*=*(' ./' 2!3' *0-*;:*4.' *10-&.!/4' 7&(.;5' ./' 2!3' ,&6!;5' -/44*0!/43'8<*!4>' /67*53'>(&41F 04-;*' /4' .2*' 6/.2*(3' 3!1*9' 2*' A&3' /4' ,(!*41;5' .*(63'A!.2' .2*' 6/3.' 1!3.!4>0!32*1' 6*4' 4' 7&(.!-0;&(' 2*' ;!=*1' A!.2' .<*' 5/04>*(' -!7!/' &41'2!3',(!*41' 3*;!03'!4' .2*' -;/3*3.'!4.!6&-5' *' &--/67&4!*1' .2*',/(F 6*(' 10(!4>' .2*' 06&4.!4' &('&41' 1!*1' !4' &7;*3' $N' / [!3' 3&.!(*3' !4' .2!(.5' </!D3' *(*' 60-2*3.**6*1'!4'.2*'.!6*/,'.2*' *70<;!-'&41';&.*(' *' 7/33*33'406*(/03' <0.' !4-/43!1*(&<;*' ,(&>6*4.3',(/6' A2!-2' 2/A*=*(' -&4' <*' >&.2*(*1' .2*!(' /(!>!4&;' 7/3!.!/4'!4'.2*'>*4*(&;'3-4*6*' /(' 63'A/(^' &-2'</!D'-*(.&!4;5'-/4.&!4*1'&'406<*(' /,' 3*7&(&.*' 7/*63'A2!-2' &.';*&3.' !4' </!D3' 00=!"000'8.2*',!(3.'A(!..*4'&41' 70<;!32*19' A*(*' -/67/3*1';!D*' .2*' 3&.!(*3' /,' 44!03' !4' =&(!/03' 6*.(*3' 4' 6/3.',' .2*' </!D3' 2/A*=*(' /4;5'& 3!4>;*' 6*.(*' A&3' 03*1'<5' ,&(' .2*' 6 3.' -/66/4' <*!4>' .2*' 1&-.5;!-' 2*0&6*.*(' 8<D3'!"00'&41' 0009' A2!-2',(/6' /(&** 3' .!6*' <*-&6*' .2*' /(1!4&(5'6*.(*' ,/(' 3&.!(*' 2*' -/4.*4.3' /,' .2*' 3&.!(*3' A*(*' *0-**1!4>;5' =&(!*1' &;' /--0((*4-*3' /,' 7/;!.!-&;'"3/-!&;' &41';*&(4*1';!,*' A*(*' </0>2.'<5' 2!6' A!.2!4' .2*' (&4>*' /,' 2!3' 1!3-033!/4' *' *=*4' ./0-2*1' 07/4' 2!3' /A4' *07*(64-*3'&41' 2!3' 3.01!*3'/4';!.*(&(5'&4.!F :0&(!&4' >(&66&.!-&;' &41' /(.2/>(&72!-&;' :0*3.!/43' !3' 3*=*(*3.'-*430(*' &41' 6/3.' 7!.!;*33' 6/-D*(5' A*(*' 1!(*-.*1' 4/.' /4;5' &>&!43.' .2*' =!-*3' &41' &<30(1!.!*3' /,' .2*' .!6*' !4' >*4*(&;'<0.' &;3/' &>&!43.' 7&(.!-0;&(' !41!=!10&;3' A!.2/0.' &45'(*37*-.' /,' 7*(3/43' 4' .2*' /.2*(' 2&41'.(0*' 6*(!.'(*-*!=*1' 2!3' A&(6*3.' 7(&!3*' !3' 3&.!(*3' 603.' 2&=*' >!=*4'/4' .2*' A2/;*' &' .(0*' &41';!=*;5'7!-F .0(*' /,' .2*' .!6*' 4' 6*.(!-&;',/(6' &41'/4' 3.5;*' 2*' 1/*3' 4/.' 3**6' ./' 2&=*' 3*.' 60-2' 3./(*' !.' !3' &77&(*4.;5' /4;5'!4' !.3' 6*.(!-&;' 3*..!4>' .2&.' 2!3';&4>0&>*' 1!,,*(3',(/6' .2*' 1&!;5'./4*'/,'*10-&.*1'-!(-;*3' /'.2*';&..*(' A*' 6&5'&;3/'7(/<&<;5'&3-(!<*' .2*' !4-/(7/(&F .!/4'/,'3/' 6&45',(&>6*4.3'/,' (**D' !3' A(!.!4>3' *&(;5'<*-&6*' &4' /K*-.'/,' 3.015' ./' .2*' ;*&(4*1' /,' /6*' &41' .2*5' &;3/' (*6&!4*1' 6/1*;3' ./' 30<3*:0*4.' 3&.!(!3.3' *37*-!&;;5' /(&-*

8@9' ' " ',(!*41' /,' .2*' 72!;/F 3/72*(' *4*-&'!3'3077/3*1'<5'&/6 6/4'<0.' 4/.'!67(/<&<;*'&330 67.!/4./'<*' .2*'&0.2/(/,']4&'&' 1!1&-.!-'7/*6' !4' ?C?' 2*0&6*.*(3' 0*./4!03' !4' 2!3' ;!,*' /,' *(>!;' 3&53' /,' .2&.'7/*.' ' ' ' ' 1 ' ,"(' .'.(*&.3'/,' .4&'&41'!.3'A/41*(3' &41' A&3' -/67/3*1'<*,/(*' .2*' *(07.!/4' /,' *30=!03'!4'

2-!4&' 2*' /6&4'.!.;*' /,' 04/'8:=9' &3'.2*'>/11*33'/,';!>2.'&41'/,'-2!;1"<!(.2*' ;&.*(&;3/',' !&4&'!4'3!6!;&(&--*7.&.!/4

2-(*.!03' T(43'#+ ' ' /6&4'7/*.' </(4'&.' /6*'&</0.'TR' '&41'1!*1'<5'2!3' /A4'2&41'!4'VV' *' -/(17/3*1',/(' 2!3' ,(!*41' *66!03'.2*' /(&./(' &41' 7/*.' &' 1!1&-.!-'7/*6'!4'2*0&6*.*(*=*(3*' -/4-*(4F !4>'.2*'4&.0(*/,'.2!4>3'#5 7! '> ' !4' 3!0' </!D3' 2*' .*&-2!4>' /,' 7 - (03' ,/(63' .2*' 6&!4' 30<K*-.' .2*' *0&67;*' /,' 67>1S-;*3'7(*3-(!<*' .2*'7/*.!-',/(6'&41' .2*' 6/1*' /,' .(*&.6*4.' A&3' 6/1*;;*1' /4' 44!03' 2*' /3.*43!;B*' /<K*-.' /,' .2*' A/(D

!3 ./ 7(/=*<5&7(/,/041!4=*3.!>&.!/4/,.2*A/(!1/,4&.0(*.2&.&;-/4!*3./*<*0!3.3&41 7*(!32*3<5*.*(4&;&A!.2/0.&45!4.*(,*(*4-*/,307*(4&.0(&;7/A*(3&41 2*4-*./3*.6*4,(**,(/6.2*!(,*&(,0;./(.0(*.*((/(&41 307*(3.!.!/4 2*,!(3.*;*6*4.3/,&;;*0!3.*4-*&(*.2*67*(!32F&<;*&./63A2!-2 6/=*!4!4,!4!.*37&-*8<//D!9 5 04!/4/,.2*3*-/6*!4./*OF!3.*4-*4/./4;5.2*6&.*(!&;A/(;1 8!!9<0.&;3/3/0;&41 37!(!.A2!-2-/43*:0*4.;5 7*(!32&3 3//4&3&1!33/;0.!/4/,.2*&./63.&D*3 7;&-*8!!!9 7*(-*7.!/4 3*43&.!/4 &41 .2/0>2.&(*6*4.&;7(/-*33*3/--&3!/4*1<5 !6&>*3A2!-2&(*-*&3*;33;5<*!4>*6!..*1<5.2*(,&-*3/,.2!4>3 8!=9//D.(*&.3/,.2*,/(6&.!/4/,.2*A/(;1=!/,3!4>;*4&.0(&;72*4/6*4* 2!3A/(D!3.2*/4;5-/43!1*(&<;*-/67/3!.!/4!4*7!-=*(3*A2!-2 2&3-/6*1/A4./03,(/6.2*.!6*/,.2* *70<;!-.2*!3&;3/.2*,!(3.&..*67.&.&353.*6&.!-.(*&.6*4./,(**D72!;/3/725!4.2* &.!4./4>0*2*>(*&.*3.&1F6!(&.!/4!3 10*./.2*&(.A!.2A2!-20-(*.!03>!=*37/*.!-,/(6./2!3047/*.!/&;30<*-.&41 &1&7.3./2!370(7/3* &;&4>0&>*A2!-2 2&1 2!.2*(./<**4;!..;*0*(-!3*1/4 30-2./7!-3 2*6&..*(-&03*3.2* *07/3!.!/4./<* !4 (/..3-/ *-.!/4 9 /,.*4 1(5<0.,(*F:0*4.;5!.(!3*3./&6&>4!,!-*4.<*&0.5&3!4.2*,&6/03 1*3-(!7.!/4/,.2* .2*4!&47;&>0*&.2* *41/,.2* 7/*6 2*3-!*4.!,!-Q*&;"A!.2A2!-2.2* A2/;* !3!6<0*1&41 A2!-2 3.&413&;//,(/6&;;,(!=/;!.5 603.!437!(* (*37*-. *OF7(*33*3 2!63*;,A!.2 3!67;!-!.5&41 7/A*(&41 2!3;&4>0&>*2&3&4&4.!:0*-/;/0(!4>*A&3 7(*=*4.*1<5 1*&.2,(/6 70..!4>.2*,!4!32!4>./0-2*3./*,&!&A/(D f/(*=*4,(/6-/67;*.!4>!. 203.2*(*!3 4/.2!4>/4.2*30<*-./,*.2!-3 A2!-2-/0;1 4/.7(/7*(;5<* 6!..*1!4&4*07/3!.!/4/,.2*.*&-2!4>/,7!-0(03g .!3.(0* .2&.!-*(/(*=!3*1!.<*,/(* 70<;!-&.!/4 5*.2*-/41!.!/4!4A2!-2 A* 2&=*!.!3!4 >(*&.6*&30(*1*,*-.!=*01! @ &04& 2* .&;!&4>/11*33/,.2*6//4 2* 2&1!4 /6*&4&4-!*4.3&4-.0&(5/4.2* =*4.!4*!4A2!-2&3>/11*33/,.2*6/4.2 32*(*-*!=*1A/(32!7/4.2*;&3.1&5 /,&(-2A2!-2A&3.2*,!(3.6/4.2/,.2*/;1 /6&4 5*&(3 "H;&67/,.2*4!>2.!32*2&1&.*67;*/4.2* &;&.!4*A2!-2A&3!;;06!4&.*1&.4!B.;7*(-,!;!&*,*3.!=&;2*;1!4 /6*,(/6.!6*!66*6/(!&;/4*<(0&(5$V .A&3!4 2/4/0(/,&0403A2/A&3A/(F32!77*1 41*(.2* 4&6* ' !4.2*;! &(>(/../!4.2* &;&.!4* /04.2*/<*-./,.2*,*3.!=&;A&3<5*07!&.!/4&41 70(!,!-&.!/4./>!=*4*A;!,*&41,(0!.F,0;4*33./,!*;13,;/-D3&41 7*/7;*2*-0;.A&3/(!>!4&;;5 &16!4!3.*(*1<5.A/-/4,(&.*(4!.!*3*A2!-2A*(*-2/3*4,(/6.2*6*6<*(3/,.2* &<!&4&41 S0!4.!;!&4,&6!;!*3&41 A*(* 4&6*1!4-/43*:0*4-*;A "&41; T "")/.2*3*A&3&11*1!4CC ((.2&./,.2*; !4 2/4/0(/,&*3&(4-/4F3*:0*4-*/,.2*-!=!;A&(3.2*-0;.,*;;!4./1*30*.01*<0.A&3(*4*A*1<5 0>03.03 4!67*(!&;.!6*3.2* 6*6<*(3/,.2*3* 1 A*(*-/66/4;5/,*:0*3.(!&4 3.&41F!4>&41(*.&!4*1.2*4&6*/,;*=*4&,.*(;*&=!4>.2*</15 2*,*3.!=&;A&3/<3*(=*1 04.!;CTC !4A2!-2 5*&(!32/7*;&3!03-2&4>*1!.!4./.2* *&3./,.2* 0(!,!-&.!/4 2*7(/-*10(*&.2*; A23&/,;;/A3 ,.*(.2* '' 2&1 3&-(!,!-*1 3/6*2*">/&.3&41&1/>.A/5/0.23A*(*./0-2*1/4.2*,/(*2*&1 A!.2&D4!,*36*&(*1A!.2.2*<;//1/,.2*>/&.3 .&3.2*4!66*1!&.*;5A!7*1/,,A!.2A//;1!77*1!4 6!;D A2*(*F07/4.2*5A*(*</041./;&0>2,.*(.2*3&-(!,!-!&;,*&3.2* ; -(/A4*1&41&4/!4.*1&41 4&D*1*0-*7.,/(&4&7(/4/,>/&.3D!4(&4(/041.2*&4-!*4.-!.5/4.2* &;&.!4*A!.2.2/4>3-0.,(/6.2*3D!4/,.2*3&-(!,!-*1>/&.3!4.2*!(2&413 4.2*!(-/0(3*A/6*4 03*1./7;&-*.2*6F3*;=*3!4.2*!(A&5./(*-*!=*<;/A3,(/6.2* .2/4>3A2!-2A&3<*;!*=*1./<*&-2&(6&>&!43.<&4"*44*33 2*.2/4>3A*(* -&;;*1<C ,(/6.2*/;1A/(1H./70(!,5I .2*1&5 (H.2*1&5/,70(!,!-&.!/4I &41.2*A2/;* $;H.2*6/4.2/,70(!,!-&.!/4I 03.(06&6/4>.2* /6&43A&3.2*70(!,!-&.!/4/(&<3/;0.!/4,(/6 3!4/,.2*4.!(*7*/7;*.//D7;&-*&.2*-;/3*/,*&-2 "8# Y%9-/66/4;5!4 &5/,.2*5*&(,/;;/A!4>.2* -*43/(3 &--*33!/4./,,!-*2* 2/3./,.2*7*/7;*2/(3* &41,//.!4.2*!(4*A;5-/43.!.0.*1-;&33*3A&3 1(&A4 07 !4 ,0;;&(6/0(/4.2* &6703&(.!03 041*(.2*;*&1*(32!7/,.2*-*43/(./A2/6.2!3 10.5,*;;<5;/. 2* !

&6/4> 2!3 3.&.0*3 /, >/13 A*(* .2* -/;/33&; /, .2* (&4!-03 f ((!&4 " (! $? U ;0.&(-2 - $?g 2* *0-*;;*4. -/75 !4 6&(<;* &. .2* &.!-&4 /, .2* -: "

,.-2&!(& /4*"*1>*1 3A/(1 3;!>2.;5 -0(=*1 !4 03* &6/4> .2* (**D3 /(,0(.2*(!4,/(6&.!/4 +. 8-

,.-2!/4 &41 11!!;!(!03 2* 3/03 /, 3-;*7!03 &41 7 ?4` 3D!;;*1 !4 .D* &(./, 2*&;!4> .//D 7&(.!4 .2* *07*1!./4 ./ (/5 A!.2 .2!(.5 2*33&;!&4 32!73 &41 A*(* .2*(* .2* 7253!-!&43 /, .2* (**D3 <*3!1*3 ,!>2.F !4> =&;!&4.;5 --/(1!4> ./ 7/3." /6*(!- ;*>*413 &-2&/4 A&3 3;&!4 <5 0(K.75;03 .2* 3/4 /, *;*7203 &41 2!3 -/(73* A&3 <(/0>2. <5 *3./(./ *33*4!& A2*(* &. (*4!& 2* 2&1 & 3*70;-2(* &41 & .*67;* !4 A2!-2 -0(*3 A*(* *,,*-.*1 /1&;!(!43 A2/ (*-/>4!3*1 .2* 6&14*33 /, K&0 <5 2!3 <0(4!4> *5*3 3.&5*1 A!.2 &;-2&3 ,(/6 .2* ,&;; /, (/5 ./ 2!3 1*&.2 &41 .2*4 *..;*1 &. 5(4 3 !4 &(!& 2* 2&1 &(" !4 70;!& -;/3* ./ .2&. /, &;-2&3 &-(1<!43 & +(6&4 /, 2!>2 (&4D &41 &--/(1!4> ./ 2!3 /A4 &--/04. 4/. & </6 /6&4 &41 7(/<&<;5 & 7&>&4 A2/ A(/.* !4 .2* <*>!44!4> /, .2* V.2 -*4.0(5 &,.*(2(!3. .A/ *0.&4. A/(D3 8$9 & /66*4.&(5 /4 !-*(/3 (*&6 /, -!7!/ # " " ,(/6 .2* 3!0.2 </ /D /, .2* 5 7 # &41 8@9 &4 &4.!F :0&(!&4 -/67!;&.!/4 !4 3*=*4 </ /D3 .(*&.F !4> /, & 406<*(/, 2!3./(!-&; 65.2/;/>!-&; >(&66&.!-&; &41 &4.!:0&(!&4 30<K*-.3 !4 .2* ,/(6 /, .&<;* .&;D &. & -*;*<(&.!/4 /, .2* # 2*4-* .2* .!.;* $ " " &-(/<!43 2&3 >&.2*(*1 2!3 !4,/(6&.!/4,(/6 =&(!/03 &0.2/(3 *37*-!&;;5 *;;!03 A2/6 2/A*=*(2* 1/*3 4/. 6*4F .!/4 &45 6/(* .2&4 2!3 /.2*(&0.2/(!.!*3 3*4&13 8 (" H .2* ,(*4Q!*1 /4*3 I /6*4 !4 &--2!/ *-3.&35 A2/ ,/(6*1 7&(. /, .2* .(&!4 /, !/45303 ,!> " 1 ,!> $ 9 &>!3.*(:0!.06 2* &33!3.&4./, .2* 1!-.&./(4/6!4&.*1 <5 2!6 !6 6*1!&.*;5 &,.*(<!3 /A4 &77/!4.6*4. &41 </041 ./ /<*5 2!6 04-/41!.!/4&;;5 (*7(*3*4.!4> 2!6

!] 8 /(4* &.!-&4 03*/6 9

&5/0.2 (*6/=!4> .2* 103./, .2* 7&;&*3.(& A!.2, 3.(!>!; &,,/(13 &4 !1*&/, 2!3 3D!;; !4 (*7(*3*4.!4> <*&0.!,0; &41 7*(,*-.;5 1*=*F ;/7*1</1!*3/, 1*;!-&.* *;&3.!-!.5 &41 >(&-*F ,0; 3077;*4*33 f ;!45 000!= ?@g

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&(* 1!3.!4>0!32*1 ,(/6 .2* /.2*(3 <5
.2* 7/33*33!/4 / , .2* & &
G1*(!=*1 ,(/6 .2* (*>&; 7/A*(8.2* " -
2&1 !. ,/(,!=* 1&53 /4;59 .2*5 &41 .2*
&*43/(A2/ A!.2/0. 7/33*33!4> .2* 2
1*(!=*1 .2*!(10.!*3 ,(/6 .2* (*>&;
7/A*(-/43.!.0.* .2* 2!>2*(6&>!3.(&.*3
1 $ A2!;* .2* (*3.&(* .2*
;/A*(" A!.2 .2* *0-*7.!/4 / , .2*
.(!<04*3 A2/ 2&=* &; 7/3!.!/4 / , .2*!(A4
/(.2/3* /,,!-*3 A2!-2 -/7;1 /(!>!4&;;5
<* 2*;1 <5 7&.(!-!&43 &;/4* .2* .*(6 71,4
"' A&3 7(*3*(=*1 *=*4 &,.*(.2*5 2&1
<*-/6 * &--*33!<;* ./ .2* 7;*<*!&43 2*
" /,,!-*3 &;3/ .2* .(!<04&.* &41
7;*<*!&4 3*1!;*32!7 1/ 4/. 1*3!>4&.* &45
7/;!.!-&;-/4.(&3. &,.*(7;*<*!&43 &41 7&.(!F
-!&43 2&1 <**4 6&1*;*>&;;5*:0&; &;.2/0>2
G/4;5 7;*<*!&43 -/0;1 2/;1 .2*6 4/.2*(
1!3.!4-.!/4 !3 .2&. !4./ 1
&41 " " A2!-2 (*,*(3 ./ .2* (!>2.
/ ,2&=!4> & & 2!3 &41
.2* 1 H - @ 1 *1>*1 A!.2
70(7;* A*(* &--/(1*1 ./ .2* 2!>2*(6&>!3F
.(&.*3 .2* &41 .2* 1
4;5.2*" 1
&41 .2* 1 A*(* 7*(6!..*1
./ 2&=* ;!-./(3 A!.2 .2* & ;
.2* 6&>!3.(&.*3A*(* *;*-.*1 *0-*7..2*
&41 .2* 1 .2* 1 R
&. .2* =*(5
6&>!3.(&.* 2&1 .2* (!>2. ./ -&;; .2* 7*/7;*
./ & " Q & ./ !330* *1!-.3 A2!-2 2&1
.2*, /(-* / ,; A3 &3 ;/4> &3 2a3 &0.2/(!.5
& ;&3.*1 ./ .&D* &037!-*3 A2!-2
A*(* <!41!4> ,/(.2* 1!3.(!-. A!.2!4 2!3
K0(!31!-./4 &41 ./ *0*(-!3* &;!6!.*1 (!>2.
/ 704!32 6*4. .2* 2!>2*(6&>!3.(&.*3 &41
.2* .(!<04*3 2&1 .2* 7/A*(>*4*(&;;5
37*&D!4> / , -/4=/D!4> .2* -/.*!.!& &41 .2*
3*4&.* & " & + (7/A*(/ , .2*
6&>!3.(&.*3 A&3 ;!6!.*1 <5 .2* 3*4&.* .2*
!4.*(-*33!/4 / , .2* .(!<04* t &41 / , 6&>!3F
.(&.*3 / , *:0&; /(2!>2*((&4D .2* (!>2.
/ , &77*&; / , .2* -!.!Q*43 &41 .2* ;!&<!;!.5
./ >!=* &--/04.&,.*((*.!(*6*4.,(/6 /,,!-*
,/(4/-26(>* -/0;1 <* </0>2. &.&45 (&.*
&>&!43. .2* 2!>2*(6&>!3.(&.*3 &3 ;/4> &3
.2*5 2*;1 !.

2* ,/;;/A!4> A*(* .2* -/41!.!/43 ,/(
/<.&!4!4> &4 /,,!-*W 8$9 *(3/4&; &77;!-&F
.!/4 <*,/(* .2* *;*-.!/4 .2* (!>2. / , (*F
K*-.!/4<*!4> !4 .2* 2&413 /, .2* 6&>!3.(&.*
A2/ 1!(*-. .2*6 8& -/430; !4 .2* *&3* /,
.2* 2!>2*(6&>!3.(&.*3 &.(!<04* ,/(.2*
7;*<*!&4 &-/430; [&,.*(A&(13 &;3/ .2*
7(&*./(/ , .2* -!.5 [,/(.2* (*3.9 8@9 ;!>!F
<!;!.5 1*7*41*4. /4 6*6<*(32!7 / , &/!.!&*4
,&6!;5 ,0;; 7/33*33!/4 / , 7*(3/4&; ;!<*(.5
&41 2/4/(&(5 (!>2.3 & A = 0A &41 .2*
&<3*4-* ; </1!;5 <;*6!32 84/.* &;3/ .2&.
7&.(!-!&43 -/0;1 4/. 2/;1 7;*<*!&4 /,,!-*39
8 9 6!4!606&>* ,/(*&-2 /,,!-* &. ,!(3.
&--/(1!4> ./ & -*(.&!4 .(&1!.!/4 .2*4
(*>0;&.*1 <5 ;&A 3/ .2&. !4 !-*(/3 .!6*
& -&41!1&.* ,/(.2* :03*3./(32!7 2&1 ./ <*
!4 2!3 N.2 5*&(&. ;*&3. !4 2!3 U.2 ,/(
.2* -2(0;* 3*1!;*32!7 !4 2!3 1 .2 ,/(.2*
7(.*./(32!7 &41 !4 2!3 C (1 ,/(.2* -/430;F
32!7 8C9 . .2!3 .!6* &;3/ .2* .(&1!.!/4&;
/(1*(/ , .2* &</=* 6*4.!/4*1 /,,!-*3 A&3
-/43!1*(*1 ;&A &41 & 6&4 A&3 -/67*;;*1
./ 2/;1 .2* ;/A*(/,,!-* <*,/(* 2* -/0;1
7(/-**1 ./ .2* 2!>2*(*0-*7. .2&. .2*
3*1!;*32!7 -/0;1 <* 4*>;*-.*1 8V9 4 !4F
.*(=&; / , .A/5*&(3 2&1 ./ *;&73* <*.A**4
.2* 3*1!;*32!7 7(6./(32!7 &41 -/430;&.*
&41 /,/4* 5*&(<*.A**4 .2* .(!<04&.* &41
&45 /.2*(/,,!-* 8?9 *4 5*&(3 231 ./
;&73 <*,/(* .2* 3&6* /,,!-* -/0;1 <* 2*;1
&>&!4" !4 .2!3 &41 =(!.2 (*>&(1 ./ &>*
/(1*(/ , /,,!-*3 &41 !4.*(=&;3 <*.A**4 .2*6
*0-*7.!/43 A*(* 7*(6!..*1 041*(37*-!&;
-!(-063.&4-*

2* 1&.* / , .2* *;*-.!/43 A&3 ,!0*1 <5 .2*
3*4&.* !4 !-*(/3 .!6* .2*5 030&;;5 ./(D
7;&-* !4 0;5W T[A =!!! Cg
(/6 4 $V .2* 6&>!3.(&.*t A2/3* 4&6*3
A*(* 3/;*64;5 &44/04-*1 & " " (&.
.2* *41 / , .2* *;*-.!/43 6 /3.;5 *4.*(*1
07/4 .2*!(/,,!-* /4 &40&(5 $3. & &
" 1 (" 1
03.&3 /4 .2!3 /--&3!/4 .2*5 3A/(* ./ D**7
.2* ;&A3 3/ &. .2* *41 / , .2*!(.*(6 / ,
/,,!-* A2!-2 A&3 & 5*&(*0-*7. !4 .2* -&3*
/ , .2* -*43/(3 .2* 1!-.&./(&41 .2* 1
& .2*5 &,,!(6*1 /4 /&.2 <*,/(*
1 " $.4&. .2*5 2&1 1/4* 4/.2!4> -/4"

.(&(5' ./' .2*' ;&A3' 2*' /,! /!&;3' *;*-.*1' ./' &4' /,,!-*' =&-&.*1' <*,/(*' .2*' *41' /,' .2*' 5*&(' & ' 3! 6 7;5' 2*;1' !.' ,/(' .2*' (* 6 &!41*(' /,' .2&.' 5*&(' 2*' /4;5' .2!4>' .2&.' -/0;1' ;*>&;;5' -/67*;' &' 6&>!3.(&.*' ./' (*3!>4' <*,/(*' .2*' *41' /,' 2!3' .!6*' A&3' &',/(6&;' *(((/(' !4' .2*' .&D!4>' /,' .2*' &037!-*3' &.' .2*' *;*-.!/43

2*' 6&>!3.(&.*3' (*-*!=*1' 4/' 3&;&(!*3' A2&.3/*=*(' <0.' .2*5' A*(*' !41*64!,!*1' ,/(' /,,!-!&;' *07*43*3' A!.2!4' .2*' ./A4' & 1',/(' .2*' >&6*3' /(' A!.2/0.' !.'' .2/3*' /,,!-!&;3' 6/(*' *37*-!&;;5' A2/' A*(*' >/!4>' ./' .2*' 7(/=!4-*3' &3' 7(/-0(&./(3' (*-*!=*1' &' 30,,!F -!*4.' 306' ,(/6' .2*' .(*&30(5' ,/(' .2*!(' *:0!76*4.' &41' .2*' 3077/(.' /,' .2*63*;=*3' &41' .2*!(' 30!.*' 41*(' .2*' 67!(*' .2*' /;1' 6&>!3.(&-!*3' -/4.!40*1' ./' *0!3.' .2/0>2' .2*!(' &0.2/(!.5' A&3' -/43!1*(&<;5' ;!6!.*1'' .2*' 3*=*(&;' &(.!-;*3' &41' ,/(' .2*!(' *;*-.!/4' '' & '8*419' *3!1*3' .2*3*' 406*(/03' 4*A' /,,!-*3' -&6*' !4./' *0!3.*4-*' *37*-!&;;5' .2*' =&(!/03' # %' 3/6*' /,' A2/6' (*-*!=*1' &4' &-.0&;' 3&;&(5

2*' 6&>!3.(&-!*3' A*(*' -/67;*.*;5' (*F 6/1*;;*1' <5' !/-;*.!&4' &41' /43.&4.!4*' *37*-!&;;5' A!.2' (*>&(1' ./' .2*!(' 7&5'' &;' !67*(!&;' /,,!-!&;3' (*-*!=*1' 3&;&(!*3' A2!;*' .2*' 604!-!7&;' 1!1' 4/.' $ ' .2*' 3*=*(&;' &(.!-;*3' 6*4.!/4*1' !4' .2*' <*>!44!4>

&>4&' &.*(' ' /6&4' 4&6*' /,' .2*' >/11*33' 2*&' 8> =9

&>4*3' 4*' /,' .2*' ,!(3.' ,/041*(3' /,' ..!-' /6*15' 8 **' " &

&!&' &0>2.*(' /,' .;&3'&41' ;*!<4*' /4*' /,' .2*' ;*!&13'& ' 6/.2*(' /,' *(6`3' <5' *03' 2*' /6&43' !1*4.!,!*1' 2*(' A!.2'&4' /;1' .&;!&4'>/11*33' /,'37(!4>' ' $; ' 8&;3/'-&;;*1' A " ' /" ' 5 ' A2/' A&3' 2*;1' ./' <*' .2*' A!,*' /,' 0;-&4' &41' ./' A2/6' .2*' ,;&6*4' /,' .2&.' >/1' 3&-(!,!-*1' &' 7(*>4&4.'3/A'/4' .2*' $3.' /,' &5

&!*3.!!3' *4/.*1' &6/4>' .2*' /6&43' .2*' 3/=*(*!>4' 7/A*(' /,' .2*' 7*/7;*' &41' .2*' .&.*' /(' .2&.' /,' .2*' *67*(/(' 1*.(&-.' ,(/6' .2!3' 3/=*(*!>4' 7/A*(' &3' &' -(!6*' & "' " ' (!>!4&;;5' .2*' .*(6' ' & ' !4-;01*1' &;' /,,*4-*3' /,' .2!3' D!41" 1!3.!4-.!/43' A*(*' ,!(3.' 6&1*' !4' ' $NN' <5' .2*' ; 5' 1 ' A2!-'2' 1*-;&(*1' 3/6*' /,,*4-*3' ./' <*' .(*&3/4' .2&.' 2&1' 7(*=!/03;5'<**4' (*>&(1*1' &3' 30-2' &3' 2!41*(!4>' .2*' .(!<04*3' &41' *0-!.!4>' ./' 3*1!.!/4' 2*' !1*&' /,' .(*&3/4' A&3' -/4F 3!1*(&<;5'*0.*41*1' <5' .2*' ; -' $ " ' ' .2*' 1!-.&./(' 0;;&'!4' ' RN' A2!-2' 6&1*' !.' !4-;01*' !4-.!4>' ./' 3*1!.!/4' 2!41*(!4>' &' 6&>!3.(&.*' !4' .2*' *0*(-!3*' /,' 2!3',04-.!/43' &41' &-.!4>' !4' &' 6&44*(' 7(*K01!-!&;' ./' .2*

/6&4' 7(*3.!>*' /(' <*5/41' .2*' ;!6!.3' /,' /4*3' &0.2/(!.5' .' &;3/' !43.!.0.*1' &' 7*(F 6&4*4.';&A-/0(.'& ' S.K)3 !/') ' ./' .&D*' -/>4!3&4-*' /,' 30-2' -&3*3' &41' 6&1*' *0!;*' & " ' ' ' 1" ' .2*' 7*4&;.5' & ' #)& ' &*3&(3' ; -' ' ' C?' 6&1*' ' 7&33' /=*(' !4./' "' ' A2!-2' A&3' 2*;1' ./' -/=*(' &;;' &-.!/43' 7(*K01!-!&;' ./' .2*' .&.*' &41' .2*' *0!3.!4>' -/43.!.0.!/4' 830-2' &3' .(*&3/4'7;/.3' -/437!(&-!*3' 3*1!.!/4' !;;*>&;' &3306 7.!/4' /,'&0.2/(!.59' 2*' 0;!&4' &A' &;3/',/(6*1' .2*' <&3!3',/(' 704!32!4>',,*4-*3' /,' .2!3' D!41' 041*(' .2*' 67!(*" ./' .2*3*' A*(*' 4/A'&11*1'&;;'.2/3*' &>&!43.'.2*' 7*(3/4' &41' .2*' &0.2/(!.5',' .2*' 67*(/(' 2*' .*(6' A&3' *(5' *;&3.!-' &41' (*-*!=*1' A2&.*=*(' !4F .*(7(*.&.!/4' .2*' *67*(/(' 7(*,*((*1' 3/' .2&.' A2*4' &' -2&(>*' 1' .2&.' /,' *6<*Q3;*6*4.' & ' ?))&" & ' A&3' <(/0>2.' &>&!43.' &' 6&4' 2*' -/0;1' /,.*4' <*' &;3/' -2&(>*1' A!.2' .2*' "' ' *37*F -!&;;5'&3' .2*' &--03*(3' A*(*' (*A&(1*1'!,' .2*' /,,*4-*' A&3' 7(/=*1' ,.*(' .2*' -;/3!4>' /,' .2*' " ' .2*3*' *&3*3' A*(*' 1*-!1*1' <5' .2*' 3*4&.*' ;&.*(' 3.!;' .2*' 67*(/(' A&3' K01>*' /(' *4.(03.*1' .2*6' ./' .2*' (' 2*' (*>0;&(' 7*4&;.5' A&3' -/4,!3-&F .!/4' &41' 3/6*.!6*3' <&4!32 6*4.' /(' 1*&.2' 2&(>*3' /,' .(*&3/4' -/0;1' <*' <(/0>2.' /(' .2*' .(!&;' -/0;1' <*' -/4.!40*1' *=*4'&,.*(' .2*' 1*&.2' /,' .2*' &--03*1" &41' !4' .2*' 6/3.' 3*(!/03' -&3*3' .2*' 7*4&;.5' 2&1' ./' <*' </(4*' <5' .2*' -2!;1(*4'!4'&--/(1&4-*' A!.2'&' 1*-(*' /,' .2*' *67*(/(' &41' *=*4' A!.2' .2*' ;&'A'&.'&' ;&.*(' 7*(!/1

6*(3' 0

&6*(.!403' &$ ' ' &.!4' 7&4*(' >5(!3.' .2*' &0.2/(' /,' &'37**-2' &11(*33' ./' .2*' *67*(/(' 0;!&(;' /4' &40&(5' $3.' ?@' &.' /43.&4.!4/7;*' .2&4D!4>' 2!6' ,/(' -/4,*((!4>' .2*' -/430;&.*' /4' 2!6' .'>!=*3' &'7(*..5'&--0(&.*' 7!-.0(*' /,' .2*' 7*(3/4&;!.5' /,' .2*' *67*(/(' &41' /,' 2!3' &16!4!3.(&.!/4' 4' /;1*(' &6*(.!403' !3'&330 6*1' ./' <*' .2*' &0.2/(' /,' .A/"7&4*>5(!-3' !4' 7(&!3*' /,' &0!" 6!4!&443' -/"(*>*4.' A!.2' !/-;*.!&4' A2!-2' A*(*' 1*;!=*(*1' !4' @RT' &41' @T$' &.' (*=*3

&6,!(!43' 2*' 65.2!-&;' 6&D*(' /,' .2*' " ' & ' &4&' 4;.&' ' 0

&4-;7&.;/'&. ' &' .&D!4>' A!.2' .2*' 2&419' ' ,/(6&;' 6/1*' /,' 70(-2&3*' &6/4>' .2*' /6&43' A2!-2' 3** 63' ./' >/' <&-D' ./' &' .!6*' A2*4' .2*' 7(!-*' /,' 70(-2&3*' A&3' A*!>2*1' /0.!4'<&(3' /,'-/77*(' 4' .2*' 7(*F 3*4-*' /,' 3!0' /6&4' -!.!Q*43' /,' .2*' &>*' /,' 70<*(.5'/4*' /,' A2/6' &;;*1' .2*' " ' 8A*!>2*(9' 2*;1' &' -/77*(' <&;&4-*' .2*' 70("

-2&3*(' .//D' 2/;1' /,' .2*' .2!4>' &41' 0..*(*1'
-*(.&!4' 7(*3-(!<*1'A/(13' *' .2*4' 3.(0-D'
.2*' <&;&4-*' # ' A!.2' &' 36&;' 7!*-*' /,'
-/77*(' 8- ' /(' ' A2!-2' 2*'
>&=*' ./' .2*' 3*;;*(' &3' 356</;' /,' .2*' 7(!-*'
2!3' 6/1*' /,'70(-2&3*' 'H- ' 'A&3'
*67;/5*1' !4' .2*' -&3*' /,' ' " ' !*'
*3.&.*3' !4' .&;5' /(' 7(/=!4-*3' A!.2' .&;!&4'
3&A' !4' .2*' -/04.(5' /(' !4' ./A43' ;&=*3' &41'
1/6*3.!-' &4!6&;3' &41' <*&3.3' /,' <0(1*4'
4**1*1' ,/(' &>(!-0;.0(&;' 70(7/3*3" &;3/' !4'
&' -*(.&!4' D!41' /,' .*3.&6*4.3' !4' .2*' ,/(6'
/,' 6&((!&>*' -&;;*1' '&41' !4' .(&43F
,*((!4>' /4*3' 3' 7/A*(' / *(' &' 7*(3/4' # " '
./' &4/.2*(' & ' & ('
&41' 0 ( ) &
&4-;7;46' 2*' (!>2.' /,'7/33*33!/4' /<F
.&!4*1' .2(/0>2' " '& '&41' .2*'
7/33*33!/4' !.3*;,' A2!-2' 4/4*' <0.' .2*' 2*&1'
/,' .2*' ,&6!;5' 2&3' &' (!>2.' ./' 1!37/3*' /,'
" " ' ! ' "' " ' &(*',(**' 6*4'
A2/6' .2*!(',&.2*(' 2&3'>!=*4' !4./' .2*' 7/A*('
/,' &4/.2*(' 6&4' <5' " ' * >' !4' -/6F
7*43&.!/4',/(' 3/6*' 1&6&>*' .2*5' 2&=*' 1/4*'
./' .2*';&..*(' 2*!(' 7/3!.!/4' 1!,,*(*1',(/6'
.2&.' /,' 3;&=*3' !4' .2!3' .2&.' .2*5'(*.&!4*1'
.2*'(!>2.'/,'7*(3/4&;!.5'-/0;1'-/67;&!4'!,'
.2*!(' 6&3.*(3' .(*&.*1' .2*6' <&1;5' &41'(*F
>&!4*1'&;;' .2*'(!>2.3' /,' &',(**<64' 6&4' /4'
;*&=!4>' .2*1(' 7/3!.!/4' /,'1*7*41*4-*' 2!3'
A&3' *,,*-.*1'!4' .2*' 3&6*' A&5' &3' .2*';!<*(&F
.!/4' /,' 3;&=*3' " ' " ' &41' 22
" ' # ' > & ' ,.*(' .2*'(*7*&;'
/,' .2*' 3*=*(*' ;&A3' 6&D!4>' !67(!3/46*4.'
.2*'7*4&;.5'/,'-/4=!-.*1'1*<./(3'.2*'3&6*'
(*;&.!/4' &3' .2&.' 6*4.!/4*1' &</=*' *0!3.*1'
<*.A**4' d1*<./(' &41' -(*1!./(' 04.!;' .2*'
6/4*5' A&3' 7&!1
&4*3' # ' .2*' >//19' ' 4&6*'>!=*4' <5'
.2*' /6&43'./' .2*'37!(!.3'/,' .2*'1*B' A2!-2'
A*(*' 2*;1' ./' <*' !6 6/(.&;' ;!D*' .2*' >/13'&41'
'2*4-*'1*3!>4&.*1'&3'30.K2' # ' " ' 2*5'
1A*;;'<*;/A' .2*' *&(.2'&41'/4;5'-/6*',/(.2'
&.'-*(.&!4'3*&3/43'/,' .2*'5*&(' 4' .2*' " '
. , " '&.' /6*' .2*(*' A&3' &3' !4' /.2*('
.&;!&4' ./A43' &'1**7' 7!.' A!.2' .2*' 32&7*' /,'
M&O' !4=*(.*1' 3D5' D4/A4' &3' " ' .2*'
;/A*3.' 7&(.' /,' A2!-2' A&3' -/43*-(&.*1' ./'
.2*' !4,*(4&;' >/13' &41' &;3/' ./' .2*' &4*3'
&41' A&3' -;/3*1' A!.2' &3.4*' ' " '
.2/0>2.' ./' <*' .2*' >&.*' /,' .2*' 4*.2*(' A/(;1'
2!3' 3./4*' A&3' ;!,.*1' 07' .2(**' .!6*3' &5*&('
8 0>03.' @C.2' -./<*('V.2' /=*6<*('R.29'
&41' .2*' &4*3' A*(*' .2*4' <*;!*=*1' ./' (!3*'
./' .2*' 077*('A/(;1' /4' .2!3' &--/04.' .2/3*'
1&53' A*(*' 1 ' ! * ' 4/' 3*(!/03' 6&..*('
6!>2.'<*' 041*(.&D*4' /4' .2*6' &-(!,!-*3'
A*(*'/,,*(*1'./' .2*6' &3' ./' .2*' 1*&1' A&.*('
A!4*' A&(6' 6!;D' 2/4*5' /!;' &41' .2*' <;//1

/,'<;&-D' 32**7' 7!>3' &41' /0*4' A*(*'7/0(*1'
/4' .2*' >(&=*' /!4.6*4.3' &41' !4-*43*' A*(*'
/,,*(*1" &41' .2*' >(&=*' A&3' 1*-D*1' A!.2'
,;/A*(3' (/3*3' &41' =!/;*.3' <5' 7(*,*(*4-*'
<;&.!/43' A2!-2' -2!*,;5' -/43!3.*1' /,' <*&43'
*>>3' ;*4.!;3' <(*&1' &41' A!4*' A*(*' 7;&-*1'
/4' .2*' >(&=*' &41' .2*' 6/0(4*(3' 7&(./D'/,'
&' 6*31' !4' !.3' 4*!>2</0(2//1' *3!1*3' .2*'
7(!=&.*' -*;*<(&.!/43' .2*(*' A&3' &;3/' &' 70<;!-'
&41'04!=*(3&;',*3.!=&;' .2*', " 'A2!-2'
;&3.*1',(/6' .2*' $ .2' ./' .2*' @$3./,' *<(0&(5'
.2*';&3.'6/4.2'/,' .2*' /;1*(' /6&4%*&(" .2*'
;&3.' 1&5' 2&1' .2*' 37*-!&;' 4&6*' A '
&(!4>' .2*3*' 1&53' & ' .2*' .*67;*3' A*(*'
-;/3*1' 6&((!&>*3' A*(*' 7(/2!<!.*1' &41' .2*'
6&>!3.(&.*3' 2&1' ./' &77*&(' !4' 70<;!-'A!.2/0.'
.2*' ./D*43' /,' .2*!(' /,,!-*' 2*' ,*3.!=&;' /,'
.2*' 1*&1' A&3' /;;/A*1' <5' .2&.' /,' .2*' (*;&F
.!/43' /4' *<(0&(5' @@41' -&;;*1' $ '
2!3' &3' *;*<(&.*1' .2(/0>2/0.' .2*' ./A4'
<5' *&-2' !41!=!10&;',&6!;5' .2*' 6*6<*(3' /,'
A2!-2'*0-2&4>*1'7(*3*4.3'&41' 6*.'&.',*3.&;'
<&4:0*.3
&4 .2/4' 8/(' " (' 4' >57.!&4'
/,' *<*445.43' A2/' ;!=*1' !4' .2* 3*-/41' 2&;'
/,' .<*' (1'-*4.0(5' ' *' A&3' 2!>2'7(!*3.'
&.' *;; 7 ;!3'!4';B57.' &41' A(/.*' !4' (**D'
&' 2!3./(5' /,' 2!3' 4&.!=*' -/04.(5',(/6' .2*'
/;1*3.'.!6*3' ./' !.3' -/4:0*3.' <5' ;*0&41*('
.2*' (*&.',/041*1' /4' .2*' 3&-(*1'(*-/(13' /,'
.2*' >57.!&43' *-*4.' 2!*(/>;572!-' 1!3F
-/=*(!*3' 2&=*' -/4,!(6*1' .2*' &0.2/(!.5' /,'
.2!3' A/(D'&>&!43.' .2*' 1/0<.3' &41' 3037!-!/43'
7(*=!/03;5'*4.*(.&!4*1' &41' 32/A'!.' ./' 2&=*'
<**4' -/67!;*1',(/6' >//1' 3/0(-*3' /4;5' &'
.2!(1' /,' .2*' D!4>3' 4&6*3' &41' 3/6*',(&>F
6*4.3' 2&=*' <**4' 7(*3*(=*1'<5';&.*(A(!.*(3'
*' 2&3' <**4' A(/4>;5'-/43!1*(*1' .2*' &0.2/('
/,' &' (**D' 7/*6' !4' 3!0' </D3' .(*&.!4>' /,'
.2*' !4,;0*4-*' /,' .2*' -/43.*;;&.!/43' /4' .2*'
,&.*3' /,' 6*4' *4.!;*1' ' '
=&(!/03'7&(.3'/,'!.'3**6'./'2&=*' <**4'A(!.F
.*4' <5' 1!,,*(*4.' &0.2/(3' <*.A**4' .2*' (1'
&41' ?.2'-*4.0(5'&,.*(' 2(!3.
&4!&' 4' /;1' .&;!&4' >/11*33' /,' .2*'
&4*3' ' .2*' 1*&1' &;3/' -&;;*1' ;@ ' ; 2'
" ' '8.2*' 106<9' " ' 6 " 'A2/'
A&3' 2*;1'<5'3/6*'./'<*'.2*'6/.2*('/('>(&41F
6/.2*('/,' .2*' >//1' ; ' <5' /.2*(3' /,' .2*'
=!;' ; ' (!>!4&;;5' 1&0>2.(' /,' .2*'
(!=*(">/1' ;6/' &41' -&;;*1' &(&' 32*' A&3'
1*7(!=*1'/,'2*(' ./4>0*' <5' 07!.*(' <*-&03*'
32*' 2&1' <*.(&5*1'2!3' ;/=*' ,/(' .2*' 5672'
0.!64&' &41' A&3' -/41*64*1' ./' <*' .2*'
5672'/,' .2*' 6&(325' A&.*(3' !4' .2*'(*&;6'
/,' .2*' 37**-2;*33' 4' .2*' A&5' ./' .2*'
4*.2*('A/(;1' *(-0(5',*;;' !4';/=*' A!.2' 2*('
&41' .2*' &(*3' A*(*' 2*(' /,,37(!4>' 4'
*&(;5' .!6*3' </53' &(*' 3&!1' ./' 2&=*' /&&

3&-(!,!-*1 ./ 2*(./ !430(* .2* 7(/37*(!.5 / , & ;&6!;5 . & ;&.*(7*(!/1 2*&13 /, 7/77!*3 &41 >&(;!- A*(* ,,*(*1 ./ 2*(B &41 A//;;*4 1/;;3 " !-&;;*1 &,.*(2*(A*(* 3037*41*1 /4 .2* 1//(3 &3 &7(/.*-.!/4 3 " 6 " 32* (*-*!=*1 .2* 3&-(!,!-* /, &1/> &41 A&3 !67;/(*1 4/. ./ ;*. &45 /, .2* ,&6!;5 <*-/6* & H>//1 /4* I 1!* 4 .2* -/0(3* /, .!6* &4!& <*-&6* & </>5 A!.2 A2!-2 -2!;1(*4 A*(* .2(*&.*4*1 &4!;!03 2* (*70.*1 &0.2/(/, & &.!4 1!1&-.!-7/*6 &</0.&3.(/4/655 &41 &3.(/;/>5 # " !4 ,!=* </!D3 .2* ,!(3. /, A2!-2 A&3 A(!..*4 041*(0B3.03 &,.*(.2* <&..;* !4 .2* + " T &41 .2* ,!,.2 041*(!<*(!03 2* ,!(3. .A/ </!D3 .(*&. /, &3.(/4/655 &3 .2* ,/041&.!/4 /, &3.(/;/>5 .2* (*3. /, .2* !4,;0*4-* /,-/43.*;;&.!/43 /4 206&4 1*3.!45 2* &0.2/(-*(.&!4;5 !4.*41*1 ./ A(!.* & 3!O.2 </!D <0. !. 2&3 *!.2*(<**4 ;/3. /(A&3 4*=*(A(!..*4 2* 7/*. A2/ 32/A3 *0.*43!=* D4/A;*1>* ,(*:0*4.;5 </!3.3 /, 2&=!4> <**4 .2* ,!(3. &6/4> /6&4 7/*.3 ./ .(*&. .2* 30<K*-. &41 2&41;*3 2!3 1!,,IF -0;. .2*6* A!.2 & 1*0.*(!.5 &41 & 6/(&;* &(4*3.4*33 .2&. (*-&; 0-(*.!03 A2/3* ;&4>0&>* 2* 2&3 ,(*:0*4.;5 !6!.&.*1 4 6*.(!-&; 3D!;; 2* !3 /4 & 7&(A!.2 .2* <*3. 7/*.3 /, .2* 0>03.&4 &>* ,.4!7!!;43 30<1!=!3!/4 /, .2* /6&4 ;*>!/4 & A2!-2 2&1 .2!(.5 /, .2*6 8.2(** !4 *&-2 /, .2* .*4 -/2/(.39 2* " -/43!3.*1 /, .A/ -*4.0(!*3 &4.!D* 83- (" !3 .2* 4&6* >!=*4 <5 .2* (**D3 ./ .2* >!, /(" R " 2* <*;!*, /, .2* &4-!*4.3 .2&. !. A&3 7/33!<;* ./ ,!41 /0. A2&. A&3 2!11*4 /(A2&. A&3 >/!4> ./ 2&77*4 37(&4>,(/6 .2* !1*& .2&. .2* >/13 A2*4 !67;/(*1<5 7(&5*(/(*=*4 A2*4 04!67;/(*1 >(&-!/03;5 -/6F 604!-&.*1 (*=*;&.!/43 ./ 6*4 <5 6*&43 /, 1!(*-. !437!(&.!/4 /(.2(/0>2 3!>43 (*:0!(!4> !4.*(7(*.&.!/4 *4-* .2* &4-!*4.3 1!3F .!4>0!32*1 <*.A**4 " &41 " !=!4&.!/4 !3 " A2*4 & 6&4 (*-*!=*3 .2* !437!(&.!/4 /, .2* 1!=!4!.5 !4 & 1(*&6 /(!4 &4 *-3.&.!- 3.&.* 2* <*;!*, !4 1!=!4* !437!(&.!/4 !4 1(*&63 !3 /, .2* >(*&.*3. &4.!:0!.5 83** ' 0 &41 -/4F .!40*1 ./ <* 2*;1 A2*4 .2* 4&.0(&; &03*3 /, 1(*&63 2&1 <**4 &3-*(.&!4*1 2* 6*&4!4> /, 7(/72*.!- 1(*&63 -&44/. 2/AF *=*(&;A&53 <*!6 6*1!&.*;5 -/67(*2*41*1 .2*5 &(* 6/3.;5 356</;!-&; &41 .2*(*,/(* (*:0!(* &4 !4.*(7(*.&.!/4 3 & >0!1* ./ .2!3 .2*(* &(/3* !4 .2* -/0(3* /, .!6* -*(F .&!4 (0;*3 (*30;.!4>,(/6 *07*(!*4-* A2!-2 7(/10-*1 &37*-!&; &(. .2&. / , !4.*(7(*.!4> 1,*&63 /, A2!-2 3/6* !1*& !3 >!=*4 <5 .2* " /4 .2* !4.*(7(*.&.!/4 /, 1(*&63 <5 (. 6 1/(03 # !6!;&(;5 .2* 1(*&63 /<.&!4*1 <5 3;**7!4> &. 2/;5 7;&-*3 # " A ( ) A2!-2 A*(* &;A&53 -/43!1*(*1 7(/72*.!- 030&;;5 4**1*1 &7(!*3./ !4.*(7(*. .2*6 2* 7/A*(/, 6/(* /(;*33 -;*&(;5 3**!4> !4 A&D!4> 2/0(3 .2!4>3 -/4-*&;*1 ,(/6 /(1!4&(5 =!3!/4 A&3 <*;!*=*1 <5 .2* (**D3 ./ <* & 37*-!&; >!, / 7/;;/ . !3 ,(/6 2!6 .2&. /6*(6&D*3 &;-2&3 (*-*!=* 2!3 (*=*;&.!/43 &;.2/0>2 4/ 6*4.!/4 !3 6&1* / 2!3 <*!4> !4 .2* *-3.&.!- 3.&.* 030&;;5 -/44*-.*1 A!.2 .2!3 D!41 /, 3//.23&5!4> .2* /(&-;*3 .2!3 3.&.* A&3 030&;;5 7(/F 10-*1 <5 *0.*(4&;!4,;0*4-*3 83** 5 (!F A/6*4 A*(* 2*;1 ./ <* 7&(.!-0;&(;5 303-*7F .!<;* ./ .2*6 *3!1*3 /(&-;*3 &41 7*(3/43 (*70.*1 ./ <* !437!(*1 03* A&3 6&1* /, =&(!/03 -/;;*-.!/43 /, /;1*(/(&-0;&(3&5!4>3 &41 7(*.*41*1 7(*1!-.!/43 /, 7(/72*.3 &41 7(/72*.*33*3 /, ,/(6*(.!6*3 0-2 -/;F ;*-.!/43 A*(* 4/. /4;5 !4 .2* 7/33*33!/4 /, 3.&.*3 &41 7(!*3.2/13 <0. &;3/ !4 .2&./, 7(!=&.* !41610&;3 -&;;*1 (1 A2/ 1(*A /4 .2*!(3./(* A2*4 7&!1 ./ 1/ 3/ <5 .2/3* A2/ <*;!*=*1 !4 .2*6 &41 /,.*4 &;3/ *07;&!4*1 .2* 1&(D 3&5!4>3 !D* .2* 7(/72*.3 <5 !6 6*1!&.* !437!(&.!/4 .2/3* &;3/ A*(* -&;;*1 3**(3 A2/ !4.*(7(*.*1 &--/(1!4> ./ -*(.&!4 (0;*3 .2* 1!=!4* 3!>43 A2!-2 ,(/6*1 .2* 30<K*-. /, .2* =&(!*.5 /, .2* &(.!/, .2* =*(5 /;1*3. .!6*3 37*-!&; !6F 7/(.&4-* A&3 &..&-2*1 ./ /6*43 /, <!(13 8A2*.2*(!4 &43A*(./ 7(&5*(/(4/.9 A2!-2 A*(* 1!3-(!6!4&.*1 ,(/6 /4* &4/.2*(<5 =&(!/03 (0;*3 A!.2 (*>&(1 7&(.;5 ./ .2* D!41 /, <!(13 7&(.;5 ./ .2* 6&44*(/, .2*!(&77*&(!4>" 1 1!(*-.!/4 8,&=/0(&<;* ,(/6 .2* (!>2. 04,&=/0(&<;* ,(/6 .2* ;*,.9 ,!>2. &;!>2.!4> 3!4>!4> &41 &45.2!4> *;3* .2*5 1!1 2* 7(!4-!7&; <!(13 -/430;.*1 A*(* .2* <!(13 /, 7(*5 .2&. ,;5 2!>2*3. &41 &;/4* .2* *&>;* 8.2* 6*33*4>*(/ , L*039 .2* 2*(/4 .2* 2&AD .2* ,&;-/4 &41 .2* =0;.0(* !4 .2* -&3* /, (&=*43 &41 -(/A3 .2* -&A!4> A&3 &4 /6*4

-/41 !4 !67/(.&4- A*(* .2* =&(!/03 72*4/6*4& /, .2* 3D5 -/43!1*(*1 &3 1!=!4* 3!>43 H 2*.2*(.2041*(&41 ;!>2.4!4> A*(* ,&=/0(&<;* /(4/. A&3 &;3/ 1*-!1*1 <5 .2* 1!(*-.!/4 (!>2. /(,*. ,(/6 A2!-2 .2*5 -&6* . . 7&(.& 32//.!4> 3.&(3 A*(* .2/0>2. / 32/A .2&. .2* >/13 A*(* 1!3F 7;*&3*1 A!.2 .2* D!4>3 -;!73*3 /, .2* 304 &41 6/4 -/6*.3 &41 6*./(3 A*(*

3!>43' .2&.' !437!(*1' .*(((/(' (/72*35!4>' ,(/6' .2*' 3.&(3' 2/A*=*(' 1!1' 4/.' <*-/6*' D4/A4' !4' (**-*' .!;;' .2*' .!6*' /,' ;*0&41*(' .2*' (*&.

4' !67/(.&4.' *4.*(7(!3*3' *37*-!&;;5' !4' A&(' (*-/0(3*' A&3' 2&1' ./' &4' *0&6!4&.!/4' /,' .2*' -/41!.!/4' /,'3&-(!,!-*1'&4!6&;3'/(' 2 G) 8 /0*4' 32**7' &41' &;3/' 7!>3' <*!4>' 6/3.' ,(*:0*4.;5' .2*' =!-.!63' 2*' 7/!4.3' /<3*(=*1' A*(*ⅈ 4/(6&;' /(' &<4/(6&;' 4&.0(*' /,' .2*' *4.(&!;3' *37*-!&;;5' .2*' ;!=*(' A!.2' .2*' >&;;"<;&11*(' &41' &;3/' .2*' 2*&(.' 37;**4' &41' ;04>3' 2*' =&(!/03' D!413' /,' *4.(&!;3' &41' .2*!(' &<4/(6&;' -/41!.!/43' A*(*' 6&1*' .2*' 30<ⅈ*-.' /,'&' 2!>2;5' *;&</(&.*' 353.*6'3/' .2&.' 4/' (**D' &(65' -/0;1' 1!37*43*' A!.2' &' 3D!;;*1' !4.*(7(*.*(' /,' 3!>43' 2*4' .2*' /6*43' A*(*' 04,&=/0(&<;*' .2*' 3&-(!,!-*' A&3' (*7*&.*1' .!;;' .2*5' A*(*' ,&=/0(&<;*' /(' .2*' *4.*(7(!3*' A&3' 7/3.7/4*1' 2*' 6&44*(' .//' !4' A2!-2' &4!6&;3' A*4.' ./' <*' 3&-(!,!-*1' A2*.2*(' A!;;!4>;5' /(' A!.2' (*;0-.&4-*' *.-' A&3' ;//D*1'07/4' &3' &4' /6*4' &3' &;3/' .2*' A&5' !4' A2!-2' .2*' 3&-(!,!-*' <0(4.' /4' .2*' &;.&(' .2*' <0(4!4>' /,' .2*' ,;&6*' !.3*;,' .2*' (!3!4>' /(' 3!4D!4>' /,' .2*' 36/D*' *.-' 2*3*' 3!>43' 1(&A4' ,(/6',!(*' A*(*' .2*' 30<ⅈ*-.' /,' "

2*(*' A&3' !41**1' &' >*4*(&;' !4-;!4&.!/4' ./' (*>&(1' &;;' 3.(!D!4>' &41' 0403 &;' *=*4.3' &3' 2!4.3' ,(/6' .2*' >/13' &41' ./' !4.*(7(*.*' .2*6' /4*3*;,' /(' ./' 2&=*' .2*6' !4.*(7(*.*1' <5' 3D!;;*1' 3**(3' (/6' &4-!*4.' .!6*3' .2*' -2&4-*' ..*(&4-*3' /,' /.2*(3' A*(*' .2/0>2.' ./' <*' 7(/72*.!-' !4' 3/' ,&(' &3' .2*5' &77;!*1' ./' .2*' -!(-063.&4-*3' /,' .2*' 6/6*4.' /(' 30-2' /6*43' &;3/' .2*' >/13' A*(*' &3D*1' *3!1*3' .2*3*' ;/.3' &41' 1!-*' A*(*' 03*1' ,/(' 7(*1!-.!/43' 2*(*' A*(*' 6&45' /.2*(' &(.!F ,!-!&;' =&(!*.!*3' /,' .2*' &(.' /,' 1!=!4&.!/4' 3/6*' /,' .2*6' =*(5' 3.(&4>*' A2!-2' A*(*' !4' 37*-!&;' ,&=/0(' !4' .2*' ;/A*(' -;&33*3' /,' .2*' 7*/7;*' &41' !4' ;&.*(' .!6*3' &3' ,/(' !43.&4-*' 3//.23&5!4>' A!.2' &' 3!*=*' 3037*41*1' <5' .2(*&13' ,/(' .2*' 70(7/3*' /,' ,!41!4>' /0.' .2!*=*3' /(' (*6*1!*3' ,/(' !;;4*33' *.-' .2&.' 4&6*' <*!4>' .2/0>2.' .2*' /4*' (*:0!(*1' &.' 6*4.!/4' ,' A2!-2' .2*' 3!*=*' -*&3*1' ./' .0(4' (/041' 3' *&(;5' &3' (!3./;*' &;;03!/4' !3' 6&1*' ./' (" :'/('7&;6!3.(5' /(' .2*' /6&4' 6*.2/13' /,' 7(/72*-5' ' (=0"

&4./' &0>2.*(' /,' .2*' 3**(' !(>3;&3' A&3' 2*(3*;,' &' 7(/72*.*33' &.' ,!(3.' /,' .2*' 36*4!&4' 7/;;/' &.' 2*<*3' ,.*(' .2*' -&7.0(*' /,' .2*' ./A4' <5' .2*' 7 > 4!' 32*' A&3' 7(*3*4.*1' ./' .2*' /(&-;*' &.' *;72!' &3' 7&(.' /,' .2*' </!.5' &41' 3*4.' <5' .2*' >/1' ./' 3!&' !4' /(1*(' ./' ,/041' .2*' /(&-;*' /,' .2*' ;&(!&4' 7/;;/'!4' .2*' 4*!>2</0(2//1',' A2&.' A&3' &,.*(A&(13' ; 72/4' *(*' 32*' </(*' /7343'# ' @9./' .2*' (*.&4' 3**(' 2 -!03' &4.0&4' &3*' ' @ & D426!33;1' (**!4>' /,' 3;&=*3' ' > & 14!!3' !4' !.3' A!1*(' 3*43*' !3' .2*' 4&6*' >!=*4' <5' .2*' /6&43' ./' .2*' 7/A*(' /,' .2*' -2!*;' /,' &' ,&6!;5' /=*(' .2*' A2/;*' /,' .2&.' ,&6!;5' *37*-!&;;5' .2*' 7/A*(' /,' .2*' 203<&41' /=*(' 2!3' A!,*' A2/3*' 7*(3/4' &41' 7(/7*(.5' A*(*' 3/' -/67;*.*;5' 2!3' /A4' .2&.' 2*' A&3' ;*>&;;5' (*37/43!<;*' ,/(' 2*(' &-.!/43' <0.' &.' .2*' 3&6*' .!6*' 2&1' .2*' (!>2.' ./'D!;;' 704!32' /(' 3*;;' 2*(' 3' !4' .2!3' (*ⅈ*-.' 3/' &;3/' A!.2' (*37*-.' ./' .2*' (!>2.' /,' !42*(!.&4-*' .2*' A!,*' A&3' 7;&-*1' /4' &;*=*;' A!.2' .2*' -2!;1(*4' &3' 32*' /<.&!4*1' .2*' 3&6*' 32&(*' &3' .2*5' /(' 6&((!&>*3' A!.2/0.' " ' ' E0 ' a

403' !!*-.!1'8D!5!4>' .2*' 2&41' /49' 4' .2*' /;1*3.' /6&4' ;*>&;' 7(/-*10(*' &' D!41' /,' *0*-0.!/4' ;*=!*1' /4' .2*' 7*(3/4' /,' /4*' A2/' 2&1' <**4' -/41*64*1' ./' 7&5' &' -*(.&!4' 306' ,' .2!3' A&3' 4/.' 1/4*' A!.2!4' .2!(.5' 1&53' /,' .2*' -/41*64&.!/4' .2*' 7;&!4.!,' -/0;1' 3*!0*' .2*' 1*<./(' &41' <(!4>2!6' <*,/(*' .2*' 7(3*./(' A2/' 2&41*1' 2!6' /=*(' ./' .2*' -(*1!./(' A!.2' .2*' A/(1' $ ' 8 ' 2&41' /=*(9' 04;*33' 2*' 7&!1' .2*(*' &41' .2*4' /(' &' " -' -&6*' ,/(A&(1' ./' 7&5',/(' 2!6' /(' ./' 32/A' .2*(*' A&3' 4/' >(/041',/(' -/67;&!4.' 2*' -(*1!./(' D*7.' .2*' 1*<./(' !4' -2&!43' &.' 2!3' 2/03*' ,/(' 3!0.5' 1&53" !,' 2!3' -;&!63' 2&1' 4/.' <**4' 3&.!3,!*1' 10(!4>' .2!3' 7*(!/1' 2*' 6!>2.' D!;;' 2!6' /(' 3*;;' 2!6' &3' &' 3;&=*' !4' ,/(*!>4' 7&(.3' (/6' .2*' C.2' -*4.0(5' /4A&(13' &' ;*33' 3*=*(*' &((&4>*6*4.' A&3' 030&;" .2*' (*;&.!/4' /,' .2*' ' ./' 2!3' -(*1!./(' A&3' .2&.' /,' &' (' ' "' " ' # ' 0 ( ) & &(-*;;03' 67!(!-03' 83/' -&;;*1' ,(/6' 2!3' *67!(!-&;' A/(D' /4' 6*1!-&;' (*6*1!*39' /,' 0(1!> ;&' # - ' &(32&;' /,' .2*' 2/03*2/;1' # 1 ' ' ./' 2* " 1/3!03' ' -/67!;*1' &</0.' ' C$N' &' 1!37*4F 3&./(5',/(' .2*' 7//(' A2!-2' A&3' -2!*,!5' ,/041*1' /4' -(!</4!03' &(>03' # ' A!.2' 6&45' 307*(3.!.!/03' &11!.!/43 &(-!&403' ' (**D' >*/>(&72*(' A2/' ;!=*1' &.' *(.;-;*&' !4' !.254!&' !.2' .2*' &!1' /,' .2*' <*3.' 3/0(-*3' /,' !4,/(6&.!/4',(/6' &44/' &41' -5;&0' 1/A4' ./' . ; 6&*03' 2*' -/67!;*1' &</0.' CNN' &' 1*3-(!7.!/4' /,' .2*' *3.*(4'&41' &3.*(4'/-*&4'!4'.A/'</D3' 4/.' /67;*.*;5'7(*3*(=*1' .'!3'/,'7&(.!-0;&(' !67/(.&4-*' ,/(' &4-!*4.' >*/>(&725B' &3' .2*' 1!3.&4-*3'!4' 3.&1!&' &(*' >!=*4 &(-03' 0(*;!03' ' 5 A ' .C &(!03' &0!603' &.!4' 2!3./(!&4' #

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&1/(4*1 &41 2*(* >!=*4 ./ .2* <(!1*>(//6
/4>3 -&;;*1 M A*(*304><5 .2*

>0*3.3'<*,/(*'.<*'1//(3'/,'.2*'-2&6<*(' 2*'4*0.'.A/'1&53'A*(*'.&D*4'07'A!.2'.2*'3*41F!4>'/,'A*11!4>'7(*3*4.3'&41'!.'A&3'/4;5'&,.*('.2*3*'1&53'2&1'7&33*1'.2&.'.2*'5/04><(!1*'&77*&(*1'04=*!;*1'.'A&3'4/A'.2*'10.5'/,'.2*'203<&41'./'*4(/;;'2!3'A!,*'!4'2!3'('&41'2&=*'2!3'6&((!&>*'(*>!3F.*(*1"&'3&-(!,!-*'&41'&'<&4:0*.',/(6!4>'7&(.'/,'.2*'-*(*6/4!*3',.2*3*',/(6&;!.!*3'A*(*'4*>;*-.*1'1/0<.3'6!>2.'<*'30<3*F:0*4.;5'(&!3*1'&3'./'.2*'=&;!1!.5'/,'.2*'6&((!&>*' '(*7(*3*4.&.!/4'/,'.2*'-*(*F6/4!*3'7(*;!6!4&(5'./'&'(**D'6&((!&>*'6&5'<*'3**4'!4'.2*'7&!4.!4>'-&;;*1'.2*' " "'M "1'# '-0.'041*(' ',!>'C 9' 2*'03&>*3'A*(*'3!6!;&('!4'.2*'/.2*('(**D'-!.!*3'B2*'7&(.&43'2&1'3/6*'7*-0;!&(!.!*3'/4*'/,'A2!-2'A&3'.2&.'.2*'<(!1*>(//6'2&1'./'>*.'7/33*33!/4'/,'2!3'<(!1*'<5'&4'&-.'/,'=!/;*4-*'-&((5!4>'2*('/,,',(/6'&6/4>'2*('-/67&4!/43'A2/'2&1'./'/,,*('&'6/(*'/('.;*33'3*(!/03'(*3!3F.&4-*' *'.2*4'<(/0>2.'2*('./'.2*'2/03*'/,'&',*6&;*'(*;&.!/4'A2/'./!D'2*('./'.2*'<(!1&;'-2&6<*('-0./,,'2*('2&!('&41'-;/.2*1'2*('!4'6&;*'&..!(*'&41'.2B'!4.(/10-*1'.2*'<(!1*>(//6'(**D'-03./6'&;;/A*1'/,'6&((!&>*'<*.A**4'2&;,'<(/.2*(3'&41'2&;,'3!3.*(3'A2*4'4/.'1*3-*41*1',(/6'.2*'3&6*'6/.2*('!(;3'>*4*(&;;5'6&((!*1'*&(;5'3/6*.!6*3'A2*4'4/.'/;1*('.2&4',/0(.**4 2*'A/6*4';!=*1'!4'&'3*7&(&.*'7&(.'/,'.2*'2/03*'3!.0&.*1'!4'.2*'077*('3./(5'/('&.'.2*'<&-D'/'.2!3'.2*'046&((!*1'1&0>2.*(3'A*(*'-/4,!4*1'&41'4/'6*4'*0-*7.'.2*'4*&(*3.'(*;&.!=*B'A*(*'&;/A*1'./'*4.*('!.' 2*',!,*'/,'&' (**D'/6&4'A&3'*4.!(*;5'.&D*4'07'A!.2'2/03*2/;1'6&4&>*6*4.',/('A2!-2'32*'!'&3'(*37/43!<;*'./'.2*',0;;*3.'*0.*4.' *('&77*&(&4-*'!4'70<;!-'A&3'(*>0;&.*1'<5'-*(.&!4';!6!.&.!/43'/,'>*4*(&;-03./6'&41'/,';&A'A2!-2'!4'6&45'7;&-*3'A*(*'3.(!-.;5'*4,/(-*1'<5'&'37*-!&;'&0.2/(F!.5'.'&3'/4;5'&.',&6!;5',*3.!=&;3'&41'.2*'>(*&.'(*;!>!/03'-*;*<(&.!/43'.2&.'.2*5'6!0*1',(**;5'!4'6*43'3/-!*.5'&.'.2*'/(1!4&(5'6*&;3'/,'.2*'6*4'.2*5'A*(*'4*=*('&;;/A*1'./'<*'7(*3*4.' 2*!('7/3!.!/4'A&3'!4'6/3.'3.&.*3'&'30</(1!4&.*'/4*' 2*'>*4*(&;'/7!4!/4'A&3'.2&.'A/6*4'A*(*'4/.'/4;5'7253!-&;;5'<0.'!4.*';;*-.0&;;5'&41'6/(&;;5'!4,*(!/('./'6*4'.2&.'.2*5'(*:0!(*1'>0!1&4-*'&41'307*(!4.*41*4-*'&41'A*(*'/4;5'./'&'3;!>2.'*0.*4.'!4'356&.25'A!.2'2!>2*('!4.*(*3.3' 2*5'A*(*'&;'.2*!('!,!*'7(*-;01*1',(/6'.2*' ;*>&;'&-:0!3!.!/4'*,'7(/7*(.5' 7&(.&'A&3'&4'*0-*7.!/4' *(*'.2*'.(&!4!4>'/,'.2*'A/6*4'A&3'&33!6!;&.*1'./'.2&.'/,'.2*'6*4' 2*' 7&(.&4'A/6&4A&3'&--03./6*1' ,(/6'2*('5/0.2'07'./'&--/04.'2*(3*;,'&'-!.!Q*4'./'.&D*'&';!=*1'!4.*(*3.'!4'&;,'70<;!-'&,,&!(3'&41'*=*4'!4'6&..*('A2!-2'*;3*A2*(*'A*(*'1**6*1'./'<*' :0!.*'/0.3!1*'.2*'372*(*'/,'A/6*4'3'K01>6*4.' 203'A/6*4'!4'7&(.&'&-:0!(*1'&'-/43!1*(&<;*'!4,;06!-*'&41'60-2'!67/(F.&4-*'A&3'&..&-2*1'./'.2*!('&77(/=&;'/('1!3&77(/=&;' 0.'*=*4'!4'7&(.&'.2*' ;!,*'/,'6&((!*1'A/6*4'A&3'6/3.;5'-/4,!4*1'./'.2*!('/A4'2/03*3'4/('A*(*'.2*5'3/',(**'&3'.2*'046&((!*1'>!(;3'./'6!4>;*'!4'6*43'3/-!*.5' 2*'6&((!*1'A/6*4'04;!D*'.2*'046&((!*1'>!(;3'-/0;1'4/.'&77*&('!4'70<;!-'04=*!;*1'B'4'7&(.&'1/A(!*3'A*(*',/(F<!11*4'<5';&A'<0.'!4'.2*43'.2*5'A*(*'&4'!67/(.&4.'*;*6*4.'!4'3/-!*.5' 2*'203F<&41'2&1'/4;5'.2*'030,(0-./,'.2*'1/A(5'!.'1!1'4/.'<*-/6*'2!3'7(/7*(;5' =*(5F.2!4>'*;3*'.2&.'.2*'A!,*'<(/0>2.'!4./'.2*'2/03*'A&3'(*>&(1*1'&3'2*('7*(3/4&;'7(/F7*(.5'.2/0>2'32*'2&1'<5'4/'6*&43'.2*',(**'1!37/3&;'/,'!.' ,'.2*'203<&41'1!*1',!(3.'.2*'A!,*'!,'32*'2&1'4/'-2!;1(*4'A/0;1'(*.0(4'A!.2'2*('1/A(5'./'2*('(*;&F.!/43'/4'.2*',&.2*(3'3!1*\!,'.2*(*'A*(*'-2!;1(*4'32*'A&3',(**'./'(*6&!4'A!.2'.2*6'!4'2*('203<&413'2/03*' 2*'7(/7*(.5'/,',&.2*('&41'6/.2*('-&6*'./',(!*'3/43'&3'3//4'&3'.2*5'A*(*'/,'&>*'07'./'A2!-2'.!6*'!.'A&3'&16!4!3.*(*1',/('.2*6'<5'>0&(1!&43'!=/(-*'6!>2.'.&D*'7;&-*'&.'.2*'6*(*7;*&30(*'/,'.2*'203<&41'<0.'2*'2&1'./(*7&5'.2*'1/A(5'04;*33'.2*'A!,*'2&1'>!=*4'&45';*>&;'>(/041',/('2!3'-.!/4'&3'1'<5'.2*'*/66!33!/4'/,'&10;.*(5'2*'A!,*'-/0;1'4/.'3*7&(&.*',(/6'2*('203<&41'&>&!43.'2!3'A!'A!.2/0.'&K01!-!&;'1*-!3!/4'/'/<.&!4'.2!3'32*'2&1'./'2&41'!4'./'.2*'&(-2/4'&(!..*'3.&.*6*4.'/,'.2*'>(/0413'/4'A2!-2'32*'3/0>2.'&'1!=/.-*',.2*'A!,*'A&3'>0!;.5'/,'&10;.*(5'.2*'203<&41'A&3'</041'./'1!=/(-*'2*('!,'2*',&!;*1'2!3'*(*70.&.!/4'30,,*(*1'&3'60-2'&3'.2&.'/,'.2*'&10;.*(33'2*(3*;,'2*'!4K0(*1'203<&41'A&3';*>&;;5'&;;/A*1'./'D!;;'.2*'&10;.*(33'/4'.2*'37/.'/.'./'6&!45'A&3'!4'7&(.&'&--/04.*1'&'=!/;&.!/4'/,'-!=!;'10.5'&41'704!32*1'<5'&'3/(.'/,'4'/;1'<&-2*;/('A&3'4/.'&16!..*1'./'.2*'70<;!-',*3.!=&;3'30-2'&3'.2*'6:"'*'2&1'&.'.2*'-/66&41'/,'.2*'727(3'./'A&;D'(/041'.2*'6&(D*.'!4'&'3!4>;*'32!(.'3!4>!4>&>&!43.'2!63*;,'.2*'A2!;*'&'6/-D!4>'1!..5'!4'A2!-2'2*'/A4*1'.2*'K03.!-*'/,'2!3'704!326*4.',/('1!3/<*1!*4-*'./'.2*';&A3'/('2&1'2*'&45'-;&!6'./'<*!4>'>(**.*1'A!.2'.2*'6&(D3'/,'1*,*(*4-*'A!.2'A2!-2'.2*'/;1'A*(*'>*4*(&;;5'(*-*!=*1'<5'.2*'5/04>

8 9 7 " 6 /4> .2 /6&43 &;&A ,0; 6&((!&> -/0;1 /4;5 < -/4.(&-.*1 <5 7*(3/43 A2/ A*(7/;!.!-&;;5 *4.!.;*1 ./ 1/ 3/ 2 (!>2. / -/4.(&-.!4> &;&A,0; 6&((!&> A&3 &. ,!(3. -/4,!4*1 ./ 2 7&.(!F -!&43 04.!; !4 CCV " .2 ;&A / .2 .(!<04 &40;*!03 /7*4*1 !. ./ &; /6&4 -!.!Q*43 2 &.!43 (*-*!=*1 !. /4 <*!4> &16!..*1 ./ .2 /6&4 -!.!Q*432!7 !4;&.*(.!6*3 !.A&3 *0.*41*1 !4 ;!D 6&44*(./ &;; .2 .&;!&43 &41 ,!4&;;5 &(&-&;;& -/4,*((*1 !. /4 &; .2 !42&<!.&4.3 / .2 /6&4 *67!(* , /4;5 /4 7&(.5 ./ .2 6&((!&> A*(/6&4 -!.!Q*4 .4 6&((!&> A&3 !4=&;!1 .2 -2!;1(*4 .//D .2 7/3!.!/4 / .2 6/.2*(04;*33 32 A*(& -!.!Q*4 &((!&>*3 A!.2!4 .2 3!0.2 1*>(* / (* ;&.!/432!7 A*(/(!>!4&;;5 ,/(<!11*4 7 ;&.*(.!6*3 .2*5 A*(&;;/A*1 &3 ,&(&3 .2 ,/0(.2 1*>(* &41 &,.*(CT 7 A!.2!4 -*(.&!4 ;!6!.&.!/43 &3 ,&(&3 .2 .2!(1 . A&3 /(!>!4&;;5 .2 7&(*4.3 <03!4*33 ./ &((&4> .2 6&((!&> / .2 -2!;1(*4 <0. .2 -/43*4. </.2 / 3/4 &41 1&0>2.*(A&3 &<3/;0.*;5 4*-*33&(5 2*(A*(.A/ 6*.2/13 / -/4-;01!4> &6&((!&>* 2 A/6&4 6!>2. -/6 !4./ .2 7/A*(# <" / 2*(203<&41 !4 .2!3 -&3 32 7&33*1 !4./ 2!3 ,&6!;5 .2 7(/7*(.5 32 <(/0>2. A!.2 2*(<*-&6 2!3 &41 32 &-:0!(*1 .2 (!>2. / !42*(!.&4- !4 2!3 ,&6!;5 (32 4!>2. (*6&!4 !4 .2 " / 2*(/A4 ,&.2*(&41 !4 7/33*33!/4 / 2*(/A4 (!>2.3 9 7(/7*(.5 6&((!&>* / .2 ,!(3. D!41 !4!>2. < -/4.(&-.*1 !4 .2(** A&53 8!9 5 " < 2!3 -*(*6/45 A&3 -2;;*1 ,(/6 .2 /,,*(!4> / & -&D / 37*;. 6&1 ./ 07!.*(!4 .2 7(*3*4- / '2 " - &41 " 5 A!.2 .*4 A!.4*33*3 2!3 A&3 .2 &4-!*4. 7&.(!-!&4 /(6 / 6&((!&>* /A&(13 .2 *41 / .2 *70<;!-&4 &> !. <*-&6 /<3/;*. *0-*7. 4 -&3 / .2 6/3. 3&-(*1 7(!*3.2//13 / '2 .&.* 8@9 5 , .2 A/6&4 ;!=*1 , /(& 5*&(!4 2*(203<&41 3 2/03 =!.2/0. &<3*4.!4> 2*(3*; , (/6 2!6 , /(!2(4!>2.3 8 9 5 / (& 356F </;!- 3&;* # " & 4 .2!3 *&3 .2 ,&.2*(1*;!=*(*1 2!3 1&0>2.*(./ 2*(<03<&01 &3 7!*- / 7(/7*(.5 32 &. 2 3&6 .!6 1*-;&(!4> 2*(-/43*4. 2 -/4F -;03!/4 / .2 6&((!&> A&3 7(*-*1 <5 .2 <. (/.2&; 4 .2!3 -*(6/45 .2 <(!1*F >(//6 >&= .2 <(!1 *&(4*3."6/4*5 &3 !4 /.2*(-&3 / -/4.(&-. /(& (!4> !4 !.3 3.*&1 A*11!4>"1&5 A&3 &;A&53 -&(*,0;;5 -2/3*4 -*(.&!4 3*&3/43 / .2 5*&(<*!4> ;**6*1 !4&77(/7(!&. /4 (*;!>!/03 >(/0413 2*3 04;0-D5 7*(!/13 A*(.2 A2/; / , &5 .2 ,!(3. 2&;; / &(-2 &41 / 04 &;; .2 1 &41 .2 -&;*413 4/4*3 &41 !1*3 2 <(!1&;>&(6*4. -/43!3.*1 !4 & A2!. 4,-& & (/< A/=*4 !4 &4-!*4. ,&32!/4 ,(/6 ./7 ./ </../6 &41 ,&3.*4*1 <5 & A//;;*4 >!(1; A!.2 & 7*-0;!&(D4/. 2 <(!1* 3 2&!(A&3 &((&4>*1 !4 3!0 ;/-D3 # "1 &41 !4 !. 32 A/(& >&(;&41 /, ,;/A*(3 /, 2*(/A4 >&.2*(!4> 2*(2*&1 A&3 -/=*(*1 A!.2 & (*1 =*!; =!-.!6 A&3 3&-(!,!-*1 .2 &037!-*3 .&D*4 &41 .2 6&((!&> -/4.(&-. -/67;*.*1 6&((!*1 ;&15 .2*4 ;*1 .2 <(!1 &41 <(!1*>(//6 ./>*.2*(.2*5 .//D *&-2 /.2*(3 2&413 & 7(&5*(A&3 &11(*33*1 ./ .2 >/13 /, 6&((!&>* &41 & 3&-(!,!- /,,*(*1 <5 .2 4*A;5 6&((!*1 7&!(>*4*(&;;5 /4 /4 /, .2 70<;!-&;.&(3 ,*&3.A&3 2*;1 !4 .2 <(!1* 3 2/03 &41 &. 4!>2.,&;; .2 <(!1* A&3 -&((!*1 /,;, A!.2 & 32/A / =!/;*4- ,(/6 .2 &(63 /,2*(6/.2*(&41 -/410-.*1 ./ 2*(4*A 2/03 !4 ,*3.&;7(/-*33!/4 7(*F -*1*1 <5 & ,;0.*"7;&5*(&41 ./(-2"<*&(*(./ .2 3!4>&1!*0 ./ .2 &6 03* 6*4.3 /, -2!;12//1 ((!=*1 &. .2 2/03 .2 <(!1* &4/!4.*1 .2 1//(7/3.3 A!.2 /!; &41 ,& &41 1*-D*1 .2*6 A!.2 A//;;*4 ,!;;*.3 2 A&3 .2*4 ;!,.*1 /=*(.2 .2(*32/;1 !4./ .2 2*(,0.0(* &</1* A2*(3./1 .2 6&((!&> <*1 *(2*(203<&41 A*;-/6*1 2*(!4./" .2 7&(.4*(32!7 / , ,!(&41 A&.*(.2&.!3 ./ 3&5 /, 1/6*3.!-;!, &41 A/(32!7 *(" &;3/ 32 /,,*(*1 & 7(&5*(./ .2 >/13 ,/(& 2&775 6&((!&>* , *&3. A&3 >!=*4 /4 .2*" 4*0. 1&5<5 2*(203<&41 -&;;*1 . .2!3 !4 2*(4*A 7/3!.!/4 &3 & 6&((!*1 ;&15 32 A*;-/6*1 2*((*;&.!/43 A2/ <(/0>2. 2*(.2*!(7(*3*4.3 &41 /,,*(*1 2*(,!(3. 3&-(!,!-* ./ .2 , " 2 7/3!.!/,. /, & 6&((!*1 A/6&4 &6/4>B .2 /6&43 A&3 60-2 <*..*(.2&4 !. 030&;;5 A&3 &6/4> .2 (**D 2 A&3 !41**1 30</(1!4&. ./ 2*(203<&41 20. 32&(*1 .2 6&4&>*6*4. /, .2 2/03 A!.2 2!6 2 A&3 ,(* !4 2*(2/03* 4/. -/4,!4*1 ./" & 37*-!&;7&(. /, !. 2 2&1 4/ 6*4!&; /,,!-*3 ./ 7*(,/(6 4/. *=*4 -//D!4> &41 2*(.!6* A&3 1*=/.*1 ./ .2 6& 3>-!4-4."

7/33*33' !3' *7!>(&63' A*(*' 60-2' (*&1' <5' .2*' &4-!*4.3' 2*5' 2&=*' 6&45' 7/!4.3' /,' *0-*;;*4-*' &41' .2*5' .2(/A' &' =!=!11' ;!>2.' /4' .2*' 6&44*(3' &41' -03./63' /,' .2*' !;=*(' >*' /,' &.!4';!.*(&.&(*
&(.;./03' B7*;;&' /,' ^&1&0(&'!4' ,(!-&' &77&(*4.;5'&'7&>&4" &' ;&A5*(' &.' &(.2&>*' *'-/67!;*1' <*,/(*' C T') '8A2*4'N*43*(!-' .//D' &(.2&>*g' &4' *4-5-;/7&*1!&' /,' .2*' ;!<*(&;' &(.3' *4.!.;*1' H 2*' &((!&>*' /,' 2!;/;/>5' &41' *(-0(5' I' #> 7',(V 1 ' ' '!4' 4!4*' </D3' &' 6*1;*5' /,'7(/3*' &41' =*(3*' /4' .2*' 7&..*(4' /,' .2*' *4!77*&4' &.!(*3',' &((/'./' A2/6'2*' !3' &;3/' /.2*(A!3*'!41*<.*1' 2*',!(3'.A/'</D3' -/4.&!4'.2*' &;;*>/(5' *(-0(5' 6&((!*3'.2*' 6&!1*4' 2!;/;/>!&' &41' &6/4>' .2*'7(*3*4.3' 2*' >!=*3' 2*(' &(*' 3*=*4' 6&!1*43' .2*' ;!<*(&;' &(.3" (&66&(' !&;*-.!-' 2*./(!-' */F 6*.(5' (!.26*.!-' 3./(4/65' &41' &(F 6/45' 8 03!-9" *&-2' /,' .2*3*' 1*;!=*(3' 2*(' .*&-2!4>' !4' .2*',/;;/A!4>'</D3' 2*' 3.5;*' !3' 7&(.;5'1(5'&41'7&(.;5'</6<&3.!-' 4' .2*' *&(;!*(' !11;*' >*3' .2*' </D' A&3',/(' &';/4>' .!6*' .2*'7(!4-!7&;' <&3!3' /,' 3-2//;' *10-&.!/4' !4' >*4*(&;' &41' *0*(.*1' >(*&.' !4,;0*4-*' /4' !

.2*' 707!;' /,' .2*' &-./(' -/4-*&;*1' 041*(' .2*' 6&3D" 3!6!;&(;5'!4' .2*' 6&3D3' /,' .(&>*15' 8,!>3' $"C9' .2*' 2/;*' ,/(' .2*' 6/0.2' A&3' /4;5'&';!..;*' ;&(>*(' .2&4' 30,,!-*1' ./' ;*.' .2*' 3/041' 7&33' .2(/0>2" A2!;*' .2*' 6&3D3' /,' -/6*15' 8,!>3' "" g' 2&1' ;!73' .2&.' A*(*' 1!3./(.*1' ,&(' &7&(.' &41' !4' .2*' ,/(6' /,' &' (/041' 2/;*' 3/' &3' ./' 6&D*' .2*' =/!-*' ;/01*(' 5'6/0;1!4>' &41' 7&!4.!4>' .2*6' !4' 1!,,*(*4.' A&53' &41' =&(!/03;5' &((&4>!4>' .2*' 2&!(' /,' .2*' 2*&1' &41' .2*' <*&(1' .2*' 6&3D3' A*(*' 6&1*' ./' (*7(*3*4.' 6&45' 1!,,*(*4.' .57*3' /,' -2&(&-.*(' 6*4' &41' A/6*4' /,' =&(!/03'&>*3' 3;&=*3' *.-" .2*' *07(*33!/4' &;3/' A&3' 6&1*' ./' &>(*' A!.2' .2*' 1/6!4&4.' 4&.0(*' /,' .2*' 7&(.3' f /;;00' !=' $ "$VCg
6/4>' .2*' /6&43' 6&3D3' A*(*' &.',!(3.' /4;5' 03*1' &.' .2*' " ' 8/ ,9' 7/70;&(' ,6(**3' &-.*1' <5' &6&.*0(3" .2*5' A*(*' 4/.' !4.(/10-*1' /4' .2*' 3.&>*' .!;;' .2*' !41' -*4F .0(5' '&41' A*(*' 4/.' >*4*(&;;5'*67;/5*1' <*,/(*' .2*' .!6*' /,' .2*' -*;*<(&.*1' &-./(' /3-!03' &4' /;1*(' -/4.*67/(&(5' /,' !-*(/' ,.*(' .2&.' .!6*' .2*' 6!6*3' 3**6' ./' 2&=*' <**4' .2*' /4;5'&-./(3' A!.2/0.' 6&3D3
;;J.!/4&' ' 4&6*' &77;!*1' <5' .2*

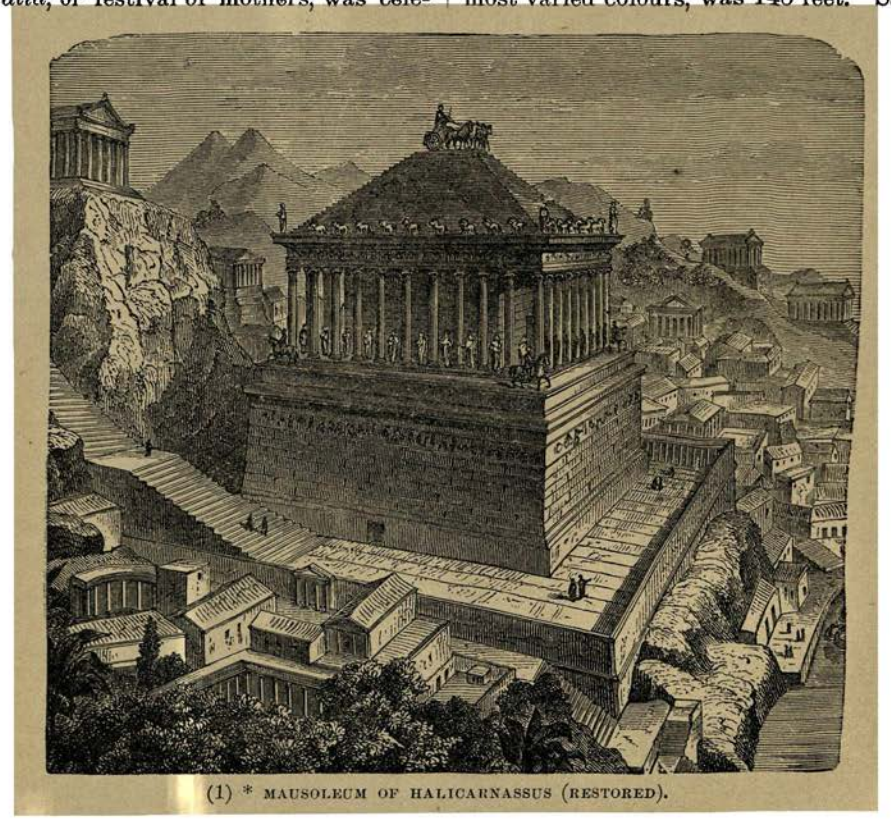
^
$"C' $! &ZD3' 03*1'!4' (&>*15' V &3D' 03*1'!4' &,5(!-' 60&3'
?"$N' &3D3' 03*1'!4' 6*15
8 !*3C$*(' +(21 ! ' *.- ' .&,' = 9

.2*' ;!<*(&;' -0;.0(*' /,' .2*' .!6*
&3D3' 8 (' ' &.' " ' 4' !41!37*43&<;*' 7&(.' /,' .2*' *:0!76*4.' /,' &' (**D' &-./(' 2*!(' 03*' ;!D*' .2*' 1(&6&' !.3*;,' >/*3' <&-D' ./' .2*' 6066*(5' &.' .2*' ,*3.!=&;3' /,' !/45303' !4' A2!-2' .2*' ,&-*' A&3' 7&!4.*1' A!.2';**3',/,' A!4*' /(' A!.2'=*(F 6!;!/4' /(' -/=*(*1' A!.2' 6&3D3' 6&!*' /,' ;*&=*3' /(' .2*' <&(D"/,' .(**3' 2*' 1*=*;/7F 6*4./,' .2*' 1(&6&' ;*1' ./' .2*' !4=*4.!/4/,' &(.!3.!-' 6&3D3' /,' 7&!4.*1' ;!4*4' A2!-2' -/4F -*&;*1' 4/.' /4;5' .2*' ,&-*' <0.' .2*' A2/;*' 2*&1' &'1*=!-*' &3-(!<*1' ./' ;3-25;03' " 2*' /7*4!4>',/(' .2*' *5*3' A&3' 4/.' ;&(>*(' .2&4

/6&43' ./' *=*(5' 2/4/0(&<;*' 6&((!*1' A/6&4' 2*' *4K/5*1' .2*' 2!>2*3.' *3.**6" .2*' A&5' A&3' -;*&(*1',/(' 2*(' !4' .2*' 3.(**.' !4' A2!-2' 32*' 6!>2.' 4/.' &77*&(' 04&--/6F 7&4!*1' &41' 32*' A&3' 4/.' &;;/A*1' ./' <*' ./0-2*1' *=*4' A2*4' -!.*1' <*,/(*' &' ;&A' -/.!(.' 2*' A&3' 1!3.!4>0!32*1' <5' .2*' ;/4>' A2!.*' ' .2*' -;/&D' -&;;*1' ' &41' 2*(' 2&!(' 1!=!1*1' !4./' 3!0' 7;&!4' 7;&!.3' A!.2' A//;;*4' (!<</43' & ' A/041' (/041' !.
&.(/4&;;&' ' ,*3.!=&;' -*;*<(&.*1' <5' /6&4' 6&.(/43' /4' .2*' 3.' /,' &(-2' .2*' &44!=*(3&(5'/,'.2*',/041&.!/4'/,'.2*' .*67;*' /,' 04/' 0-!4&/4' .2*' 3:0!;!4*' 4' .2*' 2/03*3' 3&-(!,!-*3' &41' 7(&5*(3' A*(*' /,,*(*1

for a prosperous wedlock, the women received presents from the men and waited on the slaves, just as the men did at the *Saturnalia*. In the temple of the goddess, women and girls prayed to her and to her son Mars, and brought pious offerings.

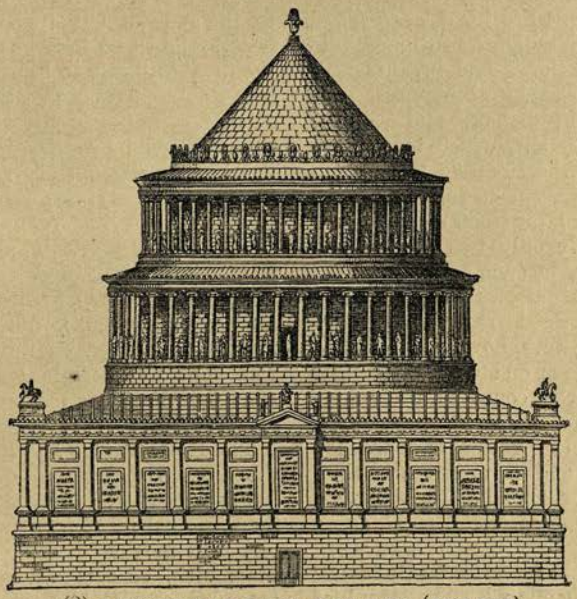
Mātūta (usually *Māter Mātūta*). An old Italian goddess of dawn and of birth, also goddess of harbours and of the sea, and hence identified with the Greek Leucŏthĕa. In her temple at Rome in the *Forum Boārium*, on the 11th of June, the *Mātrālia*, or festival of mothers, was celebrated in her honour by the women of Rome; no slaves were admitted to it, and only a matron who had not been married before was allowed to place a wreath on the statue of the goddess. The women first prayed for the well-being of their nephews and nieces, and then for that of their own children. This custom was referred to the myth of Ino-Leucothea, who tended Dīonȳsus, the son of her sister Sĕmĕlē.



(1) * MAUSOLEUM OF HALICARNASSUS (RESTORED).

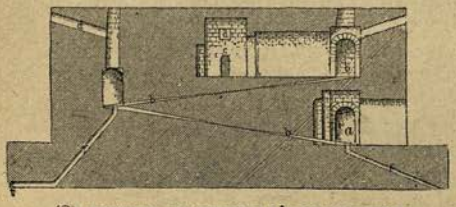
Mausōlēum (Gr. *Mausōleiŏn*). A splendid sepulchre at Halicarnassus, built in honour of king Mausōlus of Caria (died B.C. 352) by his wife Artĕmĭsia, and counted by the ancients one of the seven wonders of the world. [According to Pliny, *N. H.* xxxvi §§ 30, 31], it consisted of an oblong substructure surrounded by thirty-six columns, with a circuit of 440 feet, crowned by a pyramid diminishing by twenty-four steps to its summit, on which stood a marble *quadrīga*, the work of Pythis [or Pȳthius, Brunn, *Gr. Künstler*, ii 377, ed. 1]. The height of the whole building, gorgeous with the most varied colours, was 140 feet. Sătȳrus and Pythius were the architects, and the sculptures on the four sides were executed by Scŏpās, Bryaxis, Tīmŏthĕus, and Lēōchărēs. In the 12th century after Christ the work was still in a good state of preservation; in succeeding centuries it fell to pieces more and more, until the Knights of St. John used it as a quarry [from the time when they built their castle on the site of the old Greek acropolis in 1402, down to the repair of their fortifications in 1522, when they made lime of its marble sculptures. In 1845, a number of reliefs were

extracted from the walls of the castle and placed in the British Museum.] In 1857 the site was discovered by Newton, acting under a commission from the English

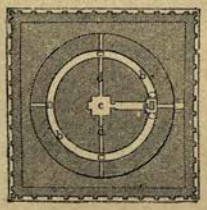


(2) MAUSOLEUM OF HADRIAN AT ROME (RESTORED).

government, and the sculptures thus unearthed [including the statue of Mausolus



(3) SECTION OF HADRIAN'S MAUSOLEUM.
a. Entrance, with Statue of Hadrian.
b. Ventilating Passage. d. Ventilating Channel.
c. Central Tomb-chamber. f. Drainage Outlet.



(4) GROUND-PLAN OF HADRIAN'S MAUSOLEUM.

and important fragments of the marble *quadriga*] were removed to the British Museum [Newton's *History of Discoveries at Halicarnassus*, etc., 1862; *Travels and Discoveries*, ii 84–137].

The Romans gave the name of *Mausoleum* to all sepulchres which approached that of Mausolus in size and grandeur of execution, as, for instance, (1) that erected by Augustus for himself and his family, the magnificence of which is attested by the still extant walls inclosing it; and (2) the sepulchre of Hadrian, which is in part preserved in the castle of *S. Angelo*, a circular building of 220 feet in diameter and 72 feet high, resting on a square base, the sides of which are almost 100 yards long. It was originally covered with Parian marble, and profusely ornamented with colonnades and statues; and probably had a pyramid on the top (*cp.* figs. 2–4).

Māvors. *See* MARS.

Maximiānus of Etruria, a Latin poet in the beginning of the 6th century after Christ. He is the author of six amatory elegies, modelled on classical poets, from whom he borrowed largely.

Maximus. (1) of Tyre. A Greek rhetorician and adherent of the Platonic philosophy, in the second half of the 2nd century after Christ. Forty-one rhetorical lectures of his on philosophical subjects of general interest are extant; the style is neat and scholarly.

(2) The author, otherwise unknown, of an astrological poem about the positions of the

3.&(3 A2!-2 &(* ,&=/0(&<;* ,/(=&(!/03 041*(F .&D!4>3 /4;5 ,(&>6*4.3 /, .2!3 &(* 7(*F 3*(=*1 .2* !3 7(/<&<;* .2&. 2* ;!=*1 041*(.2* *&(;5 67!(* *&;3 2* + % 2&1 .2(** 10(!4> .2* 1&5 8 g .2* ,!(3. <(*&D,&3. " # -/43!3.!4> /, <(*&1 A2!-2 A&3 1!77*1 !4./ 04 6!0*1 A!4* 8! g .2* 3*-/41 <(*&D,&3. /(;04-2*/4 *&.*4 &</0. 4//4 &41 -/43!3.!4> /, A&(6 1!32*3 &41 8 g .2* 7(!4-!7&; 6*&; A -2 .//D 7;&-* <*,/(* 3043*. 4 .2* /6*(!- .!6*3 6*4 3&.1/A4 A2*4 *&.!4> &-03./6 7(*3*(=*1 <5 .2* (*.&43 4 ;&.*(.!6*3 6*4 (*-;!4*1 &. .2* .&<;* 030&;;5 /4;5 .A/ ./>*.2*(/4 &-/0-2 8 ( )" % !4 30-2 &A&5 .2&. .2* ;*,. &(6 A&3 3077/(.*1 /4 &-032!/4 A2!;* .2* (!>2. &(6 (*6&!4*1 ,(** 2* A/6*4 &41 -2!;1(*4 A2/ A*(* 2/A*=*(*0-;01*1 ,(/6 (*&;<&4:0*.3 3&. /4 3.//;3 .2*,/(6*(6!>2. &;3/ 3!. /4 .2* -/0-2 &. .2*!(203F <&413 ,**. *,/(* .2* 6*&; 3;&=*3 .//D /,, .2* 3&41&;3 /, .2* >0*3.3 Y&!1 A&32*1 .2*!(,**. A&.*(&41 & ./A*; A&3 .2*4 2&41*1 ./ .2*6 ,/(A&32!4> .2*!(2&413 &41 .2!3 A&3 (*7*&.*1 &,.*(.2* 6*&; &3 4/ D4!=*3 &41 ,/(D3 A*(* 03*1 .2*(* A*(* /4;5 37//43 030&;;5 /, 6*.&; 2!;*'&.!4> .2*5 -;*&4*1 .27!(2&413 A!.2 .2* -(06 /, <(*&1 /(A!.2 &D!41 /, 1/0>2 2* -/66/4 ,//1 /, .2* ;/A*(-;&33*3 A&3 .2* &7&3.* /, <&(;*56*&; 1(!*1 !4 & 1!32 &41 6/!3.*4*1 <*,/(* !. A&3 *&.*4 7(/7*(;5 <&D*1 <(*&1 /, A2*&.6*&; A&3 -/43!1*(*1 & -/67&(&.!=* 1*;!-&-5 3 (*;!32 .2*5 2&1 3&;&1 ;**D3 /4!/43 <*&43 ;*4.!;3 &41 6*&. =&(!/03;5 7(*7&(*1 &41 *37*F -!&;;5 ,!32 6/3.;5 ,(/6 .2* 3*& A2!-2 !4 ;&.*(.!6*3 ,/(6*1 .2* -2!*, /<*-. /, .2* >/0(6&41 3 &..*4.!/4 ,.*(.2* 6*&;3 .2* .&<;*3 A*(* -;*&(*1 &A&5 8*=*(5 7&!(/ >0*3.3 030&;;5 2&=!4> &. .&<;* ./ !.3*;,9 .2* (*6 4&4.3 .2&. 2&1 ,&;;*4 ./ .2* >(/041 A*(* 3A*7. 07 &41 .2* 2&413 A*(* A&32*1 A!.2 3-*4.*1 3/&7 .2*4 &;!<&.!/4/, 04F 6!0*1 A!4* A&3 1(04D !4 2/4/0(/, .2* >//1>*4!03 . & 5 E64/4* A&3 3*!A*1 10(!4> .2* 6*&; [&41 .2* 2564 /, 7(&!3* & 9 ! A&3 304> ,.*(.2* .&<;*3 2&1 <**4 -2&4>*1 &4& .2* 1*33*(. -/43!3.!4> /, ,(0!. -2**3* -&D*3 37(!4D;*1 A!.2 3&;. *.- 2&1 <**4 3*(=*1 .2* : 2 /(.2* 1(!4D!&>"</0. <*>&4 2* A!4* A&3 1!;0.*1 A!.2 A&(6 /(-/;1 A&.*(" !4 .2*;&..*(-&3* 34/A A&3 ,(*:0*4.;5 03*1 ./ -//;!. .A&3 1**6*1 <&(<&(/03 ./ 1(!4D 046!0*1 A!4* &41 & 6!0.0(* /, *:0&; 7&(.3 /, A!4* &41 A&.*(*=*4 A&3 04-/66/4 .2* 030&; 7(/7/(.!/4/, A&.*(./ A!4* A&3 \$ 2*5 A*(* 6!0*1 !4 &;(>* </A; & ,(/6 A2!-2 !. A&3 7/0(*1 !4./ .2* >/<;*.3 <5 6*&43 /, & ;&1;* !(3. .2(** 6!0!4>"</A;3 A*(* ,!;;*1 &41 ,(/6 *&-2 /, .2*6 & ;!<&.!/4 A&3 /,,*(*1 .2* ,!(3. ./ .2* >/13 /, ;56703 .2* 3*-/41 ./ .2* 2*(/*3 .2* .2!(1 ./ L*03 .2* &=!/0(/A .2* 1(!4D!4> A&3 ./ <* -&((!*1/4& 1 2/A 6&45 >/<;*.3 *&-2 >0*3. 32/0;1 2&=*9 A&3 3*..;*1 <5 & 7(*3!1*4. A2/ A&3 -2/3*4 <5 \ .2* /.2*(3 /(<5 -&3.!4> .2* 1!-* &41 -&;;*1 G.2* D!4> 8 3B,/B.39 /(6&3.*(/, .2* ,*&3. # : /) (9 2* &;3/ *4,/(-*1 7*4&;.!*3 30-2 &3 *!6.5!4> & >/<;*. & & 3!4>;* 1(&0>2. 2* >0*3.3 &603*1 .2*63*;=*3 A!.2 6*((5 .&;D &41 (!1;*3 !67/(67.0 3/4>3 & , >&6*3 6/(* *37*-!&;;5 .2* &12 6!6*.!- 1&4-*3 .2* 7;&5!4>/, A/6*4 /4 ,;0.*3 &41 ;5(*3 *.- 2* </0. A&3 .*(6!4&.*1 <5 & ;!<&.!/4 ./ *(6*3 -(.2* 6*&;3 /, .2* 7&(.&43

2* (&;3/ 2&1 .2(** 6*&;3 10(!4> .2* 1&5 (*&D,&3. " /("$; "&.&<0. T ;/;/A*1 !4 *&(;5 .!6*3 <5 .2* 7(!4-!7&; 6*&; & &41 <5 .2* " !4 .2* *=*4!4>" <0. &,.*(A&(13 .2* 60;.!7;!*1 /--07&.!/43 /, -!.5 ;!,* .2&. *0.*41*1 /=*(.2* *&(;5 2/0(3 /, .2* &,.*(F 4//4 4*-*33!.&.*1 & 1!,,*(*4. &((&4>*6*4. ;04-2 " A&3 &--/(1!4>;5 .&D*4 &. 4/ 4 &41 .2* " &,.*(<&.2!4> &. &<0/. 2* @ " " -/43!3.*1 /, <(*&1 1!77*1 !4 A!4* /(*&.*4 A!.2 2/4*5 3&;. /(/;!=*3 .2* " /, & 7;*4.!,0; 3077;5 /, A&(6 &41 -/;1 =!&413 A!.2 A!4* . .2* " /(!>!4&;;5 4/.2!4> A&3 *&.*4 <0. .2* 7*-0;!&(;5 /6&4 & D!41 /, 7/(F (!1>* &41 /.2*(3!67;* ,//1 *37*-!&;;5 -/66/4 =*>*.&<;*3 6*&. A&3 4/. 030&;;5 *&.*4 &41 7(/;/4>*1 1!44*(3 A*(* /4;5 7*(6!33!<;* /4 >(&41 /--&3!/43 (/6 .2* @41 -*4.0(5 /4A&(13 .2* !67/(.&.!/4 /, 1&!4.!*3 ,(/6 *=*(5 -/04.(5 ./ /6* 6&1* *0.(&=&>&4-* !4 *&.!4> 3/ 04!=*(3&; .2&. !. A&3 =&2!;5 &..*67.*1 ./ -2*-D !. <5 ;&A &41 &. .2* 3&6* .!6* .2* " A&3 7(/;/4>*1 /=*(.2* A2/;* /, .2* ;&..*(*41 /, .2* 1&5 !. A&3 ;//D*1 07/4 &3 &((* 6&0D&<;* !43.&4-* /, *-/4/6!3!4> .!6* A2*4 !. A&3 ./;1 /, & 6&4 ;!D* .2* /;1*(;!45 .2&. 2* /4;5 37*4. .2(** 2/0(3 (* 1!4!4> &. .&<;* & , >45 2! V * $ g 4 .2* -/0(3* /, .!6* (*-;!4!4> 2&1 <**4 30<3.!.0.*1 /, (3!..!4> !4 .2* -&3* /, 6*4 &3 !4 (** -* A/6*4 &41 -2!;1(*4 3&. &. 6*&;3 <0. 804;!D* .2* (** D -03./6 .2*5 32&(*1 .2*6 *=*4 A2*4 !4=!.*1 &(0*3.3 A*(* 4(*3*4. .2* A/6*4 3!."

7(!*3.*33 /, (. 6!3 7(/6!3*3 ./ 1*;!=*(.2* -/04.(5 ,(/6 .2* <&((*44*33 .2&.!3 /77(*33F !4>!. /4 -/41!.!/4 .2* 3077/3*1 3/4 /, 2*(6/(.&; *4*65 !3 >!=*4 !4./ 2*(7/A*(2*4 .2!3 !3 1/4 32* (*-/>4!3*3 2*(3/4 A2/ A!.2 2*(&!1 D!;;3 *(3*3 &41 .&D*3 7/33*33!/4 /, 2!3 >(&41,&.2*(3 (*&;6 2* (**D3 ;//D*1 /4 *103 &3 .2* 7(/>*4!./(/, .2* /1*3 --/(1!4> ./ /4* ;*>*41 *1*& <*-&6* .2* A!,* /, -2!;;*3 !4 ;53!06 &3 1!1 *;*4 &--/(1!4> ./ &4/.2*(./ /(!4.2 32* A&3 1**6*1 !66/(.&; &41 (*>&(1*1 &3 &<*4*,&-.(*33 /, .2* -!.5 A2!-2 32* A&3 &;;*>*1 ./ 2&=* 1*;!=*(*1 ,(/6 & ,&6!4* ;3*A2*(* 32* A&3 6*(*;5 (*F >&(1*1 &3 &4 &4-!*4.: 0**4 *(3*=*4 3/43 &41 3*=*4 1&0>2.*(3 A*(* D!;;*1 <5 /(!4.2!&4 A/6*4 &. .2* &;.&(/, *(& /4 &--/04. /, A2!-2 & 7*3.!;*4-* (&=&>*1 .2* ./A4 &41 &4 /(&-0;&(1*-(** /(1&!4*1 .2&. &4 &440&; *07!&./(5 /,,*(!4> 32/0;1 <* 6&1* 2!3 A&3 /<3*(=*1 04.!; .2* 1*3.(0-F .!/4 /, .2* ./A4 G

!6403 (**D 6*&30(* /, -&7&-!.5 3!0 .!6*3 &3 ;&(>* &3 .2* /6&4 &41 !4 4>;!32 &</0. , <032*; .3 7(!4F -!7&; 30<1!=!3!/43 A*(* .2* (" - 8 9 - . :1 : 8 3 $: (. 1 : *103 /4 /,)>*03 &41 *1*& *103& 4* /, .2* /(>/43 A2/3* 2*&1 A&3 -0. /, , <5 *(3*03 & # @

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">1(& &0>2.*(/, .2* 2*<&4 D!4> (*/4 A!,* /, *(&-;*3 & ! &,.*(A&(13 6&((!*1 <5 2!6 ./ <;&03

>&(14 4 6&45 (**D .*67;*3 & 37&-* 1!=!1*1 /, , &41 3/6*.!6*3 30<.*(F (&4*&4 A2!-2 /4;5 .2* 7(!*3. A&3 &;;/A*1 ./ *4.*(& >&3.2 4*3 (**D 2!3./(!&4 A2/ 3.&5*1 ,/(& -/43!1*(&<;* .!6* &3 &6<&3F 3&1/(/,D!4> *;*0-03 !-&./(&. .2* -/0(. /, .2* 41!&4D!4> &41(- 3 . $V"@T$9 &. &;!</.2(& 4 .2* &4>*3 (/6 !4,/(F 6&.!/4 &</0. .2* -/04.(5 &41 .2* 7*/7;* /<.&!4*1 A2!;* 2* /--07!*1 .2&. 7/3!.!/4 2* -/67!;*1 & 2!3./(!-&;* &41 >*/>(&72!-&; A/(D &</0. 41!& .2* -2!*, .(*&.!3* /4 .2&. -/04.(5 ;*,. 03 <5 .2* &4-!*4.3 4 !. &(* ,/041*1 .2* &--/04.3 , !/1 (03 &41 ((!&4" <*5/41 .2!3 /4;5 ,(&>6*4.3 &(* 7(*3*(=*1 !3 (*-/(1 /, .2* 3.&.* /, 41!& &. .2* .!6* 2&3 <**4 1!3-(*1!.*1 <0. (*-*4. !4=*3.!>&.!/43 2&=* ./ &>(*&.* 0.*4.32/A4 .3 .(03.A/(.2!4*33

*;& #) &=) ;&6703 /4/, 65.2&/4 83** 7 $9 &41 /, !1166*4 <(/.2*(/, !&3 .2* /;1*3. (**D 3**(&41 &4-*3./(/, .2* ,&6!;5 /, 3**(3 -&;;*1 *;&6711!13* 2* <(/.2*(3 A*4. A!.2 .2*!(04-;* *;*03 ,(/6 2*33&;5 ./ 5; 3 !4 *33*4!& A2*(* .2*5 1A*;. !4 .2* -/04.(5 *;&6703 /A*1 2!3 >!, / , 3//.23&5!4> ./ 3/6* 3*(7*4.3 A2!-2 2* 2&1 3&=*1 ,(/6 1*&.2 &41 (*&(*1 &41 A2/ !4 (*.0(4 -;*&43*1 2!3 *&(3 A!.2 .2*!(./4>0*3 A2*4 2* 3;*7. /4 &A&D!4> 2* 041*(3.//1 .2* =/!-*3 /, <!(13 &41 .203 ;*&(4 A2&. A&3 3*-(*. 2*4 *;*43 A/0;1 /4;5 >!=* !&3 2!3 <*&0.!,0;1&0>2.*(*(/ /4 -/41!.!/4 .2&. 2* ,!(3. <(/0>2. 2!6 .2* /0*4 /, 72!-;03 /, 2B;J-* !4 2*33&;5 A2!-2 A*(* >0&(1*1 <5 &A&.-2F ,0;1/> *;&6703 /,,*(*1 ./ ,*.-2 .2* /0*4 /(2!3 <(/.2*(.2/0>2 2* D4*A <*,/(*2&41 .2&. 2* A/0;1 <* !67(!3/4*1 ,/(& 5*&(* !3 -&0>2. 6 .2* &-. /, 3.*&;!4> .2*6 &41 D*7. !4 3.(!-./-/4,!4*6*4. (/6 .2* .&;D /, .2* A/(6* !4 .2* A//1A/(D /, .2* (//, 2* >&.2*(3 .2&. .2* 2/03* A!;; 3//4 ,&;; ./ 7!*-*3 * .2*(*07/4 1*6&413 ./ <* .&D*4 ./ &4/.2*(7(!3/4 2!3 !3 3-&(-*;5 1/4* A2*4 .2* 2/03* <(*&D3 1/A4 2*4 /4 &--/04. /, .2!3 25; -03 ,&.2*(/, 72;-;43 7*(-*!=*3 2!3 7(/72*.!-. >!,.3 2* 7(/6!3*3 2!6 .2* /0*4 !, <5 2!3 &(. 2* A!;; ,!41 /0. 3/6* A&5 /, -0(!4> 2!3 3/4 3 -2!;1;*334*33 *;&6703 /,,*(3 &* <0;; ./ L*03 -0.3!. !4 7!*-*3 &41 !4=!.*3 .2* <!(13 ./ .2* 6*&; (/6 6*3* 2* 2*&(3 .2&. &* -*(.&!4 =0;.0(* .2&. 2&1 4/ ./ -/6* D4*A 2/A !. -/.!;1 <* *,,*-.*1 2!3=0;.0(* !3 6&1* ./ &77*&(&41 (*;&.*3 .2&. .2* 1*,*-. !4 72!-;03 A&3 .2* (*30; /, &* 3011*4 ,(!>2. &. 3**!4> &<;//15 D4!,* A!.2 A2!-2 2!3 ,&.2*(2&1 <**4 -&3.(&.!4> 3/6* >/&.3 2* 2&1 10> .2* D4!,* !4./ &.(** A2!-2 2&1 >(/A4 (/041 &</0. !. !, 2* .//D 3/6* /, .2* (03. 3-(&7*1 /, , !. , /(.*4 1&53 2* A/0;1 <* -0(*1 *;&6703 ,!413 .2* D4!,* -0(*3 72!-;03 /<.&!43 .2* /0*4 &41 !&3 (*-*!=*3 *(/ ,/(2!3 A!,* ,.*(A&(13 2* A*4. ./ (>/3 <*-&03* &--/(1!4> ./ /6*(# 0 @@V"@Bg *;*03 2&1 -/6F 6!..*1 & 3*(!/03 /, ,*4-* &>&!43. 2!6 !4 2!3 &<3*4-* , /(A2!-2 2* 2&1 .&D*4 (*" d=*4>* A2!;* &--/(1!4> ./ .2* 030&; &-F -/04. 2* 2&1 <**4 &3D*1 <5 D!4> (/*.03 ./ 2*&; 2!3 1&0>2.*(3.(!-D*4 A!.2 6&14*33 , /(&-.!4> !67!/03;5 ./A&(13 !/45303 /(*(& * 2&1 3.!70;&.*1 .2&. 2!3 (*A&(1 32/0;1 <* & .2!(1 /, .2* D!4>1/6 , /(2!6F 3*;, &4/.2*(, /(!&3 <*3!1*3 A2!-2 72; 4&33& <*-&6* 2!3 A!,* &41 53!77*

G.2&' /,' !&3' </.2' <*!4>' 1&0>2.*(3' /,' (/*.03' ' 1*3-*41&4.' /,' 2!' 3/4' 4.!"
72J.*3' A&3' !-;>3' A2/' A&3' &' -/67&4!/4' /,' *(J-9`3'!4'.2*' *07*1!.1/4' &>&!43.' (/5' &41' A&3' 3;&!4' !2' <&..;*' <5' & 6 1/4" 2*' &>&!4' &3' &4-*3./(' /,' .2*' 3**(' &41' 2*(/' 672!&(&43' *3-*41&4.3' /,' 2!3' /.2*(' 3/4' &4.!43' A*(*' ;*!.03' A2/6' /3' .2*' >/11*33' /,' 1&A4' -&((!*1' /,,' /4' &--/04.' /,' 2!3' <*&0.5' &41' /;572*!1*3' 2/6' &,.*(' .2*' 1*&.2' /,' 672!&(&43' B/;;/' 6&1*' .2*' <*3.' /,' 3**(3' 2*' 3/4' /,' /;572*!1*3' A&3' .2*' 3**(' 2*/-;B6./03' A2/',;5!4>' ,(/6' (>/3' /4' &--/04.' /,' -/!46!..!4>' &60(1*(' 6*.' *;>6 -203' &.' 5;03' A&3';*1' <5' 2!6' ./' .2&-&' &41' &44/04-*1' ./' *4 "
;"7*' .2*' 7(*3*4-*' !4' .2&-&' /,' 1533*03' &41' ./' .2*' 30!./(3' .2*!(' &77(/&-2!4>' 1*&.2' H 2*' 3**(' /;5!103' 8> 0 9' A&3' &;3/' 3&!1' ./' <*' &' >(*&.">(&413/4' /,' ,*;&6703' .' (>/3' *;&6703' A&3' 2*;1' ./' <*' .2*' ,!(3.' 7(!*3.' /,' !/45303' &41' /(!>!4&./(' /,' 653F .*(!/03' -03./63' &.' ,*3.!=&;3' &41' &.' -*(*F 6/4!*3' ,' *07!&.!/4
*!B!77;1*3' (**D' 1!.25(&6<!-' 7/*.' ' * (□ □+&
;B;!0!7743' ' 2*<&4' A2/' 6/(.&;;5' A/041*1' B1*03' !4' .2*' ,!>2.' /,' .2*' *=*4' &>&!43.' 2*<*3' &41' A&3' 2!63*;,' 3;&!4' <5' 672!&(&43' # ' $
= /",!:%!%$' ' (
;&>*(' .@ ' E' $1 ' 8□9' /4' /,' X 4*03' /,' ,.;,1/4' &41' /,' ;.23*&' 203<&41' "/,' ;*/7&.(&' & ' '$ ' /4*' /,' .2*' 6/3.' %-*;*<(&.*1' 2*(/*3' /,' (**D' ;*>*41' *' ./!D' 7&(.' !4' .2*' *4.*(7(!3*' /,' .2*' (>/4&0.3' "&41' <(/0>2.' &</0.' .2*' -*;*<(&.*1' -2&3*' /,' .2*' &;51/4!&4' </&(' 83**" $ ' ./' A2!-2' !*' !4=!.*1' .2*' 6/3.' (*4/A4*1' 2*(/*3' /,' .2*' .!6*' 16*.03' 672;J(&03' "3/4' 1&3']54-*03' &3./(' &41' /;;00' *3./(' 2*3*<3' (&41' !(;.2103' *;*03' ; 6 4' &41' /.2*(3' " &45' /3.' .2*!(';!=*3' .!;;' &.' ;&3.' *;*&>*(' 3;*A' .2*' 6/43.*(' /A*=*(' (.*6!3' .2*(*07/4' 3.!((*1' 07' ,0(!/03' 3.(!,*' <*.A**4' .2*' &;51/4!&43' &41' .2*' 2(*.B3' 8A2/' 1A*;.' %&' ;*0(/4' &</0.' .2*' 2*&1' &41' 3D!4' /,' .2*' </&(' .2*' 7(!#*' /,' =!-./(5' 2*' &;5" %1/4!&43' A*(*' =!-./(!/03' &3' ;/4>' &3' *;*&F >*(' ,/0>2.' &.' .2*!(' 2*&1" <0.' A2*4' 2*' (3;*A' .2*' <(/.2*(' /,' 2!3' 6/.2*(' 32*' 0..*(*1' '&' .*((!<;*' -0(3*' /4' 2!6' &41' 2*' (*.!(*1' 30;;*4;5',(/6' .2*' ,(&5' 2*' !!(.*3' !6F 6*1!&.*;5',/(-*1' .2*' &;51/4!&43' ./' (*.(*&.' &41' A*(*' &;(*&15' <*>!44!4>' ./' -;!6<' .2*' A&;;3' /,' &;51/4' A2*4' &.' .2*' 2*!>2.' /,' ,2*K(' 1!3.(*33' 2*' 5!*;1*1' ./' .2*' 7(&5*(3' /,' ;!3' A!,*' &41' &>&!4' K/!4*1' !4' .2*' ,!>2.' ./' A&(1' /,,' 1*3.(0-.!/4',(/6' .2*' -!.5" <0.' 2*

1!1' 4/.' (*.0(4' &;!=*' ,/(' .2*' (!453' 2&1' &--/67;!32*1' .2*' -0(3*' /,' 2!3' 6/.2*(' -F -/(1!4>' ./' &' ;&.*(' ;*>*41' .2*' /*(&*' &77*&(*1' ./' 2!3' 6/.2*(' 4' .2*' 3*=*4.2' 1&5' &,.*(' 2!3' <!(.2' &41' &44/04-*1' ./' 2*(' .2&.' 2*(' 3/4' A/0;1' 2&=*' ./' 1!*' A2*4' &;/>' /,' //1' /4' .2*' 2*&(.2' A&3' -/4306*1' <5' .2*' ,;&6*" A2*(*07/4' ;.2&*&' !6 6*1!&.*;5' 34&.-2*1' .2*' ;/>' ,(/6' .2*' ,!(*' &41' -/4F -*&;*1' !.' !4' &' -2*3.' ' .2*' &;51/4!&4' 04.' *;*&>*(',*;;' !4' ;/=*' A!.2' .&;&4.' ' & ' &41' >&=*' 2*(' PA2/' 2&1' !4,;!-.*1' .2*' ,!(3.' /041g' .2*' 7(!Q*' .2*' 3D!4' /,' .2*

&4!6&;' A2!-2' 2*' 2&1' D!;;*1' *' 3;*A' .2*' </.2*(3' /,' 2!3' 6/.2*(' .2*' 3/43' /,' 2*3.!03' A2*4' .2*5' A*(*';5!4>' !4' A&!.',/(' .2*' =!(>!4' ./' (/<' 2*(' /,' .2*' </&(3' 2!1*' =*(-/6*' <5' 7&!4' &.' .2*' 1*&.2' /,' 2*(' <(/.2*(3' ;.2.*&' 3*.3',!(*' ./' .2*' ;/>' &41' *;*&>*(' 1!*3' &' 3011*4' 1*&.2' !3' 4&/.2*(' &41' A!,*' 2&4>' .2*63*;=*3' 2!3' 3!3.*(3' **7' 3/' <!.F .*(;5',(' *;*&>*(' .2&.' (.*6!3',/(' 7!.5' -2&4>*3' .2*6' !4./>0!4*&"2*43' 8 (' 2 1 ' *>*413' (*;&.*' .2&.' *=*4' !4 .2*' 4*.2*(' /(;1' *;*&>*(' (*.&!4*1' 2!3' 1&04.F ;*33' -/0(&>*' ,/(' A2*4' *(&-;*3' 1*3-*41*1

./ &1*3 &;; .2*32&1*3,;*1<*,/(* 2!6 *0-*7. *;*&>*(&41 *103&
8@9 6 1 , J1&(!4 &;*3.!4* ,;/0(!32*1 &</0. (?N !3 -/;;*-.!/4 /, *7!>(&63 <5 2!63*;,; &41 /.2*(3 *4.!.;*1 8A(*&.29,/(6*1 .2* 40-;*03 /, .2* (**D &4.2/;/>5 8> = 9 , 2!3 /A4 7/*63 .2*(* (*6&!4 $@R !4 A2!-2 &6&./(5 .2*6*3 &(* -;*=*(!5 &41 A!..!;5.(*&.*1
; .* 0)
B;!-*(.*3 4 (**D ;*>*41 .2* 3/4 /, .2&6&3 &41 4/ &41 -2&4>*1 &,.*(2!3 1*&.2 <5 1(/A4!4> !4./ .2* 6&(!4* 1*!.5 &;3*614 A2!;* 2!3 6/.2*(<*-&6* *0 -".2"& A !3 4&6*8_ ,*L.*(.9 2/A*=*(32/A3 2!6 ./ 2&=* <**4 /(!>!4&;;5 & 2-*4!-!&4 >/1 !D* 4/" *0-/.4*& 2* A&3 A/(32!77*1 /4 &;; .2* -/&3. /, .2* *1!.*((&4*&4 *37*-!&;;5 /4 .2&./, *>./ &41 &. .2* 3.2603 /, /(!4.2 A2*(* 2* A&3 3/ -;/3*;5 -/44*-.*1 A!.2 .2* -0;. /, /3*!1/4 .2&. .2* 3.26!&4 >&6*3 /(!>!F 4&;;5 !43.!.0.*1 !4 2/7/0(/, .2!3 >/1 -&6* ./ <* ;//D*1 07/4 &3 .2* ,04*(&; >&6*3 /, *;!-*(.*3 2* /6&43 (*>&(1*1 2!6 &3 &<*4*,!-*4. >/1 /, .2* 3*& 41 !1*4.!,!*1 2!6 A!.2 , " .2* >/1 /, 2&(</0(3
`;!44/ (**D 7/*.*33 #
;7"6"4 2* 03* /, .(&>*15 /(,0(.2*(1*.&!;3 0)
6414 2 <*&0.!,0;3/4 /, !.2/403 &41 /, /3 D!4>/, .2* 1!;.2!/7!&43 !3 <(/.2*(6&.2!/4 2&1 /03.*1 2!6 ,(/6 .2* .2(/4* <0. *(&-;*3 /4 2!3 *07*1!.!/4 ,/(/<.&!4!4> .2* &77;*3 /, .2* *37>(!1*3 60(1*(*1 .2* 030(7*(&41 (*!43.&.*1 *6 4/4 ,.*(*-./(3 1*&.2 2* A*4./ .2*2*;7 2!3 04-;* (!&6 &41 D!;;*1 4.!; -203 .2* 3/4 /, *3./(&41 ,(!*41 /, -2!;;*3 2*4 .2* ;&..*(2&1 3;&!4 2!6 /3 *4F .(*&.*1 L*03 ./ >(&4. 2*(3/4 .2* </!4 /, !66/(.&;!.5 2* (**D3/(!>!4&;;5 .2/0>2. .2&./4* /, .2* .A/ .2!/7!&3 6*4.!/4*1 !4 /6*(A&3 .2* (*&;6 /, *64/4 A2!-2 !3 3!.0&.*1 4*&(304(!3** &41 .2* 1 *;;!4>7;&-* /, /3 &41 2*4-* (*>&(1*1 2!6 &3 .2* <0!;1*(/, .2* (/5&;-&3.;* &. 03& . A&3 4/. .!;-; ;&.*(.2&. 2!3 D!4>1/6 A&3 !1*4.!,!*1 A!.2 .2* >57.!&4 .2!/7!& &41 .2&. 2* A&3 -/44*-.*1 A!.2 .2* -/;/33&; 3.&.0* /, 6*4/72!3 4*&(2*<*3 2!3 H -/;064 /, *64/4I !3 3.!;; 3.&41!4> ,.*(!.3 7&(.!&; 1*3.(0-.!/4 <5 &4 *&(.2F :0&D* !4 @U .2* 6 03!-&; 3/041 A2!-2 !.> >&* ,/(.2 A2*4 ./0-2*1 <5 .2* ,!(3. (&53 /, .2* 304 A&3 *07;&!4*1 &3 *64/4 3 >(**.!4> ./ 2!3 6/.2*(.2* /11*33 /, &A4 2* ./6< /, *64/4 A&3 32/A4 &. =&(!/03 7;&-*3 .A& ./;1 /, .2* /4* &. <5103 /4 .2* *;;*37/4. .2&. .2* -/6F 7&4!/43 /, *64/4 A2/2&1 <**4 -2&4>*1 !4./ <!(13 8.2* " " /4 &--/04. /, .2>!(*0-*33!=* >(!*, , /(.2*!(D!4> -&6* .2*(* *=*(5 5*&(./,!>2. &41 ./ ;&6*4. &. 2!3 >(&=* 2* 1*A"1(/73 /, .2* *&(;5 6/(4!4> A*(* -&;;*1 .2* .*&(3 /, /3 A2!-2 32* 32B &4*A *=*(5 6/(4!4> !4 3/((/A , /(2*(<*;/=*1 3/4
4&41(8 (" " T 8$9 2* -2!*, (*7(*3*4.&.!=* /, .2* &.*(../6*15 </(4 !4 (C@ &. .2*43 /, /& 1!3.!4>0!32*1 &41 A*&;.25 ,&6!;5 * (*-*!=*1 &-&(*,0;*10-&.!/4 &41 ;*1 &-/6 ,/(.&<;* &41 ;000(!/03 ;!,* 7&(.;5 &. .2*43 &41 7&(.;5 &. 2!3 *3.&.* !4 .2* !(&*03 .2* 2&(</0(/, .2*43 *4K/5!4> .2* !4.!6&.* ,(!*4132!7 /, 2!3 -/4.*67 (&(5 &41 .2* ,(!*41 /, 2!3 5/0.2 7;-,;(03 /, 2* 72(&3.03 &41 /, *6*.(!03 2&;*(*03 * 1*-;!4*1 &4 !4=!.&.!/4 /, D!4> ./;*65 / /, >57. 3/ &3 4/. ./ 2&=* 2!3 -/6,/(. 1!3.0(<*1 .2* 2*!>2. /, 2!3 7/*.!-7(/10-.!=*4*33 2* A&3 1(/A4*1 A2!;* <&.2 !4> !4 .2* !(.*03 &. .2*&>* /, ?@ !3 04-;* ;*0!3 2&1 >!=*4 2!6 3/6* 7(*7&(&F ./(5 .(&!4!4> !4 1(&6&.!- -/67/3!./4 3 *&(;5 &3 @@ 2* 6&1* 2!3 ,!(3. &77*&(&4-* &3 &4 &0.2/(*A(/.* &</=* & 2041(*1 7!*-*3 &41 A/(D*1 A!.2 .2*>(*&.*3.,&-!;!.5 <0. 2* /4;5 /<.&!4*1 .2* ,!(3. 7(!Q* ,/(*!>2. -/6*1!* K!4 .2* -/67*.!.!/4 A!.2 2!3 7/70;&((!=&; 2!;*6/4 2* &16!(&./4 &-/(1*1 2!6 <5 7/3.*(!.5 A&3 &;; .2* >(*&.*(M .2*(* A&3 /4;5 /4* /7!4!/4 &</0. .2* *0-*;;*4-* /, 2!3 A/(D !3 7(!4-!7&; 6*(!.3 A*(* (*6&(D&<;* !4=*4.!=*4*33 3D!;F ,0; &((&4>*6*4. /, 7;/.3 ;!,*";!D* 7&!4.!4> /, -2&(&-.*(& -;*=*(&41 (*,!4*1 A!. *;*>&4. &41 >(&-*,0; ;&4>0&>* &41 & - 7!/03 3077;5 /, 6&O!63 <&3*1 /4 & 7(/ ,/.61D4/A;*1>* /, .2* A/(;1 2*3* ;&3. A*(* -/;;*-.*1 !4 (*>0;&(&4.2/;/>!*3 &41 ,/(6 .2* <0;D /, .2* *0.&4. ,(&>6*4.3 4,/(.04&.*;5 4/. /4* /, 2!3 7;&53 2&3 30(=!=*1 &;.2/0>2 .2*5 A*(* 60-2 (*&1 1/A4 ./ &;&.* 1&.* /A*=*(&7&(. ,(/6 &</0. 3*=*4.5".2(** .!.;*3 &41 406*(/03 ,(&>6*4.3 83/6* /, -/43!1*(&<;* ;*4>.29 A* 2&=* .(&43-(!7.3 /, 2!3 -/6*1!*3 8!4 A2!-2 /, -/0(3* .2* 1*;!-&.* <*&0.!*3 /, .2* /(!>!4&;* &(* ;/3.9 !4 &4 406<*(/, &.!4 7;&53 <5 ;&0.03 # (, " &41 *(*4-*8 41(;./ 9 " . " D " (0-!&4 &;3/ !4 2!3 $ " " &41 ;-!72(/4!4 2!3 ; 2&=* 6&1*,(*:0*4. 03* /, *4&41*(

8@9 (**D (2*./(!-!&4 /, & 1 -*& =2/ 7(/<&<;5 ;!=*1 &. .2* *41 /, .2* (1 -*4.0(5 &,.*(2(!3. * !3 .2* &0.2/(/, .A/ .(*&.!3*3 (5 : A2!-2 &11 ./ /0(D4/A;*1> /, .2* .2*/(5 /, .2* /72!3.!- .57* /, /(&./(5f!4 7*4>*; 3 (6 !!! $"CC?g

4 ; 3 /4 /, .(*03 &41 5/04>*(</.2*(/, >&!4*64/0 A!.2 A2/6 2* A&3 %*0!;*1 <5 25*3.*3 .2* 60(1*(*(/, .(*03 &41 ,;*1 ./ D!4> 5&1&(/3 &. 7&(.& A2/3* 1&0>2.*(*;*4 2* 6&((!*1 &41 A2/3* .2(/4* 2* !42*(!.*1 &,.*(.2* 1*&.2 / ,; *;*4 3 <(/.2*(3 &3./(&41 ;51*0-*3 GP /;;00 2*4 &(!3 2&1 (/<<*1 2!6 /, 2!3 A!,* &41 /, >(*&. .(*&30(*3 2* A*4. A!.2 1533*03 ./ (/5 ./ 1*6&41 (*3.!.0 ".!/4 &41 .2*5 A*(* 2/37!.&<;5 (*-*!=*1 .2*(* <5 4.*4 (!3 K03. -;&!63 A*(* (*,03*1 &41 2!3 ;!,* A&3 *=*4 !4 1&4>*(* &41 >&6*64/4 &--/(1!4>;5 -&;;*1 /4 .2* (**D -2!*,.&!43 ./K/!4 !4&4*07*1!.!/4 "&>&!43 (/5 &41 2!63*;, ,0(4!32*1 3!0.5 '32!73 . (/5 2* 1!3.!4>0!32*1 2!63*;, !4 -/043*; &41 !4 &-.!/4 &41 A&3 37*-!&;;5 7(/.*-.*1 <5 .2*4* &41 `(& 4 .2* 3!4>;* -/6<&.A!.2 &(!3 2* !3 =!-./(!/03 <0.2!3 /77/4*4.!3 (*3-0*1 &41 .&((!*1 /, <5 72(/1!.* 4 1*6&41!4>.2&. *;*4 &41 .2* .(*&30(*3 32/0;1 <* (*3./(*1 2* !3 A/041*1 <5 &4 &((/A 32/. <5 .2* (/K&4 &41&(03 * !3 &;3/ (*&15 ./ ,!>2. *-./(&41 !3 /4;5 7(*=*4.*1 <5 .2* G*4.(*&.!*3 /, 2!3 ,(!*413 2*4 &.(/-;03 !&3 ,&;;*4 2* 32!*;13 .2* 1*&1 </15 &. ,!(3.&;/4* &41 .2*4 A!.2 .2* &!1 /, K&0 '&41 <*&(3 !., (/6 .2* ,!*;1 /, <&..;* A!.2 *(!/4*3 * !3 &;3/ /4* /, .2* 2*(/*3 /, .2* A//1*4 2/(3* &=!4>(*-/=*(*1 *;*4 2* 2&3.*43 2/6*< 0. /4 (/041!4>.2* 7(/F 6/4./(5 /, &;*& 2* !3 1(!=*4 ./ >57. A!.2 ,!=* 32!73 &41 A&41*(3 &</0. ,/(G*!>2.5*&(3 &6/4>.2* 7*/7;*3 /, .2* &3. A2*(* 2* !3 D!41;5 (*-*!=*1 *=*(5A2*(* >41 (*-*!=*3 (!-2 >!,.3 * !3 ,!4&;;5 G1*.&!4*1 &. .2* !3;* /, 2&(/3 <5 -/4.(&(5 A!413 &41 A!.2 .2* 2*;7 /, .2* 6&(!4* >/11*33 !1/.2*& 2* &(.,0;;5 -/67*;3 2*(,&.2*((<.*03 ./ 7(/72*-5 ./ 2!6 * .203 ;*&(43 .2* (*&3/4 /, 2!3 <*!4>04A!;F ;!4>;5 1*.&!4*1 &. .2* !3;&41 &41 !3 &;3/ ./;1 .2&. &3 203<&41 /, .2* 1&0>2.*(/, L*03 2* A!;; 4/. 1!* <0. *4.*(.2* ;53!&4 7;&!43 &;!=* ,.*(&77*&3!4>.2* >/13 !4 >57. A!.2 2*-&./6<3 2* (*.0(43 3A!,.;5 %&41 7(/37*(/03;5 ./ 2!3 2/6* A2*(* 2* &((!=*3 /4 .2* =*(5 1&5 /4 A2!-2 (*3.*3 !3 <0(5!4>"! >!3.203 &41 ;5.&*64*3.(& * 37*4. .2* (*3. /, 2!3 ;!,* :0!*.;5 A!.2

*;*4 !4]&-*13*6/4 2*!(/4;5 1&0>2F .*(*(6 V4* A&3 6&((!*1 ./ */7. ;>603 3/4 /, -2!;;*3

>4*3.2*03 2* 3/4 /, *.*03 A2/ 3*!0*1 .2* >/=*(46*4. /, ..!-& A2!;* 2*3*03 7!4*1 &A&5 !4 .2* 4*.2*(A/(;1 41 -/66&41*1 .2* .2*4!&43 <*,/(* (5 A2*(* 2*,*;; # &) 4!77* &0>2.*(/, (./A2/,,*(*1 ./ 1!* A!.2 2*(3!3.*(*.!<-2* A2*4 &7*3F .!;*4-* A&3 (&>!4> !4 /*/.!& &41 .2* /(&-;* 1*6&41*1 .2* 3&-(!,!-* /, .A =!(>!43 & 5

,!4!7703 (**D 72!;/3/72*(1, 1&(& !4 5(!& ,;/0(!32*1 &</0. " @VN * A&3 /(!>!4&;;5 &3;&=* &41 &,.*(A&(13 &4 &12*(*4. /, .2* 54!- 3-2//; /, 72!;/F 3/725 !3 A(!.!4>3 84/A -/67;*.*;5;/3.9 .(*&.*1 /, .2* ,/;;!*3 ,6&4D!41 *37*-!&;;5 /, 72!;/3/72*(3 !4 &3&(-&3.!- ./4* 2*5 A*(* & 6*1;*5 /, 7(/3* &41 =*(3* &41 <*-&6* 6/1*;3 ,/(.2* 3&.!(!-&; A/(D3 /, &((/ &41&,.*(A&(13 ,/(.2/3* /, 0/!&4

4/*-*03 8$9 (&413/4 /, *4.2*03 /, 2*<*3 ,&.2*(/, (*/4 &41 /-&3.&

8@9 (&413/4 /, .2* &</=* 3/4 /, D*/4 .2* 3!*>* /, 2*<*3<5 .2* *=*4 !(`3 3 7(/72*3!*1 .2&. .2* 2*<&43 A/0;1 -/4:0*(!, .2* A(&.2 /, (*3 &. .2* 3;&5!4> /, .2* 1(&>/4 <5 &1603 A*(* &77*&3*1 <5 .2* =/;04.&(5 1*&.2 /, & 1*3-*41&4. /, .2* A&((!/(3 .2&.2&1 37(04>,(/6 .2* 1(&>/4 3 .**.2 *4/*-*03 /4* /, .2* ;&3. /, .2!3 (&-* 3;*A 2!6 *;, !4 37!.* /, 2!3 ,&.2*(3 7(/2!<!.!/4 /4 .2* -&3.,* &;,&41 ,*;,1/A4 !4./ .2* -2&36 A2!-2 2&1 /4-* <**4 .2* 2&04. /, .2* 1(&>/4 &3 >0&(1!&4 /, .2* 37(!4>!(-

43 41(.2!3 4&6* .2* /6&43 7*(3/4!,!*1 !4.*;;!>*4-* &41 7(01*4-* ,.*(.2* <&..;* &. &D* (&3!6*4* A2!-2 A&3 ;/3. .2(/0>2 .2* -&(*;*334*33 /, .2* /6&43 & .*67;* A&3 *(*-.*1 ./ 2*(/4 .2* &7!./;* 2* &44!=*(3&(5/, !.3,/041&F .!/4 A&3 -*;*<(&.*1 /4 .2* .2 /, 04*

*4./(8$9 /4 /, ,-!6 03 /, .2&-& ,(!*41 /, 1533*03 A2/ /4 1*7&(.!4>, /(!45 -/4,!1*1 ./ 2!6 .2* -&(* /, 2!3 2/03* &41 .2* *10-&.!/4 /, `;*6&-203 f 1 !!@@?g !3 4&6* 2&3 2*4-* <*-/6* & 7(/=*(<!&; /4* , /(& A!3* &41 ,&!.2,0;' &1=!3*(/(6/4!./(.2*4* &330 6*1 2!3 32&7* A2*4 32* <(/0>2. *;*6&-203 ./ 5;03 f 1 !! @?Rg &41 A2*4 32* &!1*1 1533*03 !4 ,!>2.F !4>.2* 30!./(3 &41 6&1* 7*&-* <*.A**4 2!6 &41 .2*!((*;&.!=*3 fOO!! @N? OO!=' CC?g

8@9 f 2* 6/3. -*;*<(&.*1 6&3.*(/, .2* ./(*0.!-&(.& &6/4>.2* &4-!*4.3 ;!45 > 000!!! $VC9 3 3/6* /, 2!3 A/(D3

A*(*1*3.(/5*1 &. .2* <0(4!4>/, .2* .* 6 7;* /, (.* 6 !3 &. 72*303 !4 V? /<=!/03;5 2* ;!=*1 <*,/(* .2&. *=*4. &41 7(/<&<;5 ,;/0(!32*1 !4 .2* <*3. 7*(!/1 /, (**D &(. .2/0>2 2* !3 4*=*(6*4.!/4*1 <5 &45 *&(;!*((**D A(!.*(.2&4 0-!&4 #; - (" U9 * A/(D*1 6&!4;5 !4 3!;=*(2* /(&./((&3303 7&!1 $NN 8VNN 3*3.*(-*3 8E$ 8]] 99 ,/(.A -073 -2&3*1 <5 2!3 2&41 <0. ,(/6 (*>&(1 ./ .2*!(=&;0* (*,(&!4*1 ,(/6 03!4> .2*6 &(((/ 7/33*33*1 &3.&.0* A(/0>2. <5 2!6 !4 <(/4Q* &41 /4* !/1/(03 &. ;5 <&*06 .A/ ,!4* -073 !4 .2* 3.5;* /, .2/3* &1/(4*1 A!.2 ,!>0(*3/,&4!6&;3 <5 2*(!-;*3 .2* /(!4.2!&4 7/..*(8 !- = != R9 &(.!&; 8!!! C$9 6*4.!/43 &-07 A!.2 &;!,*F ;!D* (*7(*3*4.&.!/4 /, & ;!Q&(1 &41 /,.*4 (*,*(3 ./ 2!6 8!= T =!!! V$!O VT O!= T 0=*4&; =!!! $NC9 (/7*(.!03 &;;01*3 ./ 2!6 8! $C @9 &41 3077;!*3 ..3 A!.2 .2* /4;5 *0.&4.-(!.!-!36 /, 2!3 3.5;* !6 7;5!4> .2&. A2!;* .2* A/(D /, 53 # A&3 (*F 6&(D&<;* ,/(!.3 6!40.* *0*-0.!/4 .2&. 7, *4./(A&3 ,&6/03 ,/(!.3 -/67/3!.!/4 &41 !.3 >*4*(&; 1*3!>4 8!!! U 9

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*(-*4&(!*3 7&(. ,(/6 &, *A *&(;!*(*O&67;*3 /, .2* *67;/56*4. /, 6*(-*4&(!*3 &(*>0;&(/(>&4!Q&.!/4 /, 30-2 .(//73 A&3 ,/(6*1 &6/4>3. .2* (**D3 !4 .2* -/0(3* /, .2* *;/7/44*3!&4 &(*37*-!&;;5 <5 .2* (-&1!&43 A2/ A*(* -/67*;;*1 <5 .2* 7/=*(.5 /, .2*!(/A4 -/04.(5 ./ 0.!;!Q* .2*!(3.(*4>.2 &41 -/0(&>* <5 3**D!4> *6F 7;/56*4. /0.3!1* !. . A&3 6/3. *&3!;5 ,/041 <5 3*(=!4>&3 3/;1!*(3 !4 .2* -/4.!40&; A&(3 <*.A**4 .2* (*-!&4 3.&.*3 2*4 .2* 6*(-*4&(5 353.*6 A&3 &. !.3 2*!>2. (-&1!&43 ,/(6*1 <5 ,&(.2* ;&(>*(7/(.!/4 /, .2* 6*(-*4&(5 ,/(-*3 *=*4 &3 *&(;5 &3 !4 .2* ,!(3. >(*&. &(65 /, 6*(-*4&(!*3 /, $ 8]9 6*4 A2!-2 .2* 5/04>*(5(03 ;*1 &>&!43. 2!3 <(/.2*((.&0*(0*3 D!4> /, *(3!& !4 CNN 4 (**-* !4 .2* C.2 -*4.0(5 .2* >(/041 <*-&6* 6/(* &41 6/(* ,&=/0(&<;* ./ .2* >(/A.2 /, .2* 6*(-*4&(5 </15 &41 .2* -!.!Q*43 /, .2* (**D 3.&.*3 *&1 /, <*&(!4>&(63 .2*6F 3*;=*3 <*-&6* 6/(* &41 6/(* !4-;!4*1 ./ ;*&=* .2*!(A&(3 ./ <* ,/0>2. /0. <5 6*(-*4&(!*3 *37*-!&;;5 3!4-* !. 2&1 <*-/6* &.(&1* ./ ,/(6 .(//73 /, 6*(-*4&(!*3 &41 ./ ;*. 2*6 /0. A2/;*3&;* ,/(3*(=!-*B 4/ 6&..*(A2*.2*(./ (**D3 /(<&(<&(!&43 =*4 7(/6!4*4. 6*4 30-2 &3 >*3;,&;3 &41 2,;17/*6*4 1!1 4/.-/43!1*(!. <*4*&.2 .2*!(1!>4!.5 ./ ,!>2. ń,/(3.(&4>*(3 &. .2* 2*&1 /, 6*(-*4&(!*3 4* /, .2* -2!*, (*-(0!.!4> 7;&-*3 !4 .2* C.2 -*4.0(5 A&3 /(!4.2 &41 &,.*(A&(13 ,/(& .!6* .2* 1!3.(!-. 4*&(.2* 7(/6!4./(5 /, 3*4,.(06 !4 &-*1&*6/4 2*>*4*(&;3/,/6*(-*4&(!*3 A*(* -&;;*1 ! 1 * .2*!(-&7.&!43 .2(/0>2 A2/6 .2*5 (&!3*1 -/67&4!*3 /, 1!,!,*(*4. D!413 /, .(//73 D4/A4 &3 ' (/4* 2041(*1 6*4 !4 406<*(' (1 2* 030&; 6/4.2;5 7&5 /, & -/66/4 3/;1!*(A&3 /4 .2* &=*(&>* & >/;1 1&(!- f_@N 3!;=*(1(&-26&* /($ 3 C1 !4 !4F .(!43!- =&;0* /, 3!;=*(<0. !4 !4.(!43!- =&;0* /, .2* >/;1 -/4.&!4*1 !4 !._&;!..;* 6/(* .2&4 & >0!4*& &$. ,!> 9g 0./, .2!3 2* 2&1 ./ 6&!4.&!4 2!63*;, *4.!(*;5 ./ <05 2!3 &(6/0(&41 D**7 !. !4 >//1 -/41.!/4 2*7 7&5 /, .2* (1 A&3 1/0<;* &41 /, .2* 1 ,/0(.!6*3 .2&. &6/04. 4 ;&.*(.!6*3 .2* 1 !A2*4 .2*5 *4.*(*1 A!.2 -/6F 7;*. *&(6!*3!4./ .2* 3*(=!-* /, 3/6* 7/A*(&. A&(3**7! ./ 2&=* >*4*(&;5 (*-*!=*1 -/43!1*(&<;* 3063 &. .2* -/4-;03!/4 /, .2* -/4.(&-. [2* /6&43 &;3/ *67;/5*1 ,/(*!>4 6*(-(&!&(!*3 &, .*(.2* 3*-/41 04!- &(*37*-!&;;5 &3 &(-2*(3 &41 3;!4>*(3 &41 &, .*(.2* .!6* /, &(!03 & (*-(0!.*1 &(65 /, 6*(-*4&(!*3 & 6 . 2&1 37(04> /0. /, .2* *&(;!*(;*=!*1 &(65 /, -!.!Q*43 <0. .2* 4!*(-*4&(5 /(>&4!Q&.!/4 4*=*(.//D &6/!B .2* /6&43 &, ,/(6 3!6!;&(./ .2&. &6/4> .2* (**D3 *(-0(5 8 &. 2* .&;!&4 >/1 /, -/66*(-* !1 &3 30-2 !1*4.!,!*1 A!.2 .2* (**D & A2/3* 1*3-*4. &41 /.2*(:0&;!.!*3 A*(* &--/(1F !4>;5 .(&43,*((*1 ./ 2!6 3 7(/.*-./(/, .2* -/(4 .(&!*1 *37*-!&;;5 A!.2 !-!;5 A2!-2 A&3 /, 30-2 >(*&. !67/(.&4-* ./ /6* 2* A&3 ,!(3. 70<;!-;5 2/4/0(*1 !4 .2&. -!.5 <5 .2* *(*-.!/4 /, & .*67;* 4*&(.2* $ - . .2* 3&6* .!6* & >0!;1 /, 6*(-2&4.3 A&3 *3.&<;!32*1 .2* 6*6<*(3 /, A2!-2 A*(* D4/A4 &3 . .2* 5*&(;5 ,*3.!=&; /, .2* .*67;* &41 .2* >0!;1 &5 $V.2 .2* 6*(-2&4.3 3&-(!,!-*1 ./ .2* >/1 &41 ./ 2!3 6/.2*(&41 &. .2* /(./ $ 37(!4D;*1 .2*63*;=*3 &41 .2*!(6*(-2&41!3* A!.2 2&;;/A*1 A&.*(!.2 .2* 37(*&1 /, /6&4 -/66*(-* .2* A/(32!7 /, *(-0(5 *0.6 1*1 ,&(!4./ .2* *3. &41 /(.2 V(?.(!-*3 / ' S &. *41 (!14*3 /4 /, ;03 &2&;,"<(/.2*(/, 1<6 4*03 /, (*.* A2/6 2* &--/67&4!*1 ./ (/5 4 /6*(A* (*&1 .2&. 2* &3 .2*(* /4* /, .2* <(&=*3. !4 .2* ,!>2. &41

A!.2 *0-*(' 37*-!&;;5 1!3.!4>0!32*1 !4 &(-2*(5 &4 &(.' !4 A2!-2 .2* (*.&43 2&1 &;A&53 *0-*;;*1 --/(1!4>' ./ & ;&.*(' ;*>*41 /4 2!3 (*.0(4 ,(/6 (/5 2!3 =*33*; A&3 1(!=*4 ./ 4>5!/4 !4 .2* 4/(.2 /, !-!;5 A2!-2 A&3 3077/3*1 ./ <* & (*.&4 3*..;*6*4. . 4/3303 !4 (*.* 2!3 >(&=< A&3 32/A4 &41 </.2 2* &41 1/6*4*03 2!3 ,(!*41 6!1 -/67&4!/4 !4 <&..;* A*(* 2/4/0(*1 &3 2*(/*3

(1<&01*3 (2*./(!-!&4 </(4!4 7&!4 &41 1!3.!4>0!32*1 &3 & >*4*(&; &41 &;3/ &3 & &.!4 7/*. !4 .2* ,!(3.2&;, /, .2* V.2 -*4.0(5 &,.*(2(!3. *3!1*3 &32/(.2564 5 $(.2*(* &(* 7(*3*(=*1 ,(&>6*4.3 /, ,!=* 3*-0;&(7/*63 .2* ;/4>*3. <*!4>3 7&(./, &7&4*>5(!-/4 .2* .2!(1 -/430;&.* /, ".!03 8CC?9 A!.2 & 7(*,&-* !4 7(/3* 2*5 7(/=* 2!6 ./ <* 4/ 043D!;,0; !6!.&./(' /, ;&01!&4" !4 ;&4>0&>* &41 6*.(* 2* 7/33*33*3 &4 *;*>&4-* (&(* !4 2!3 .!6*

V(??' 8 9 4* /, .2* ;*!&13 &8 2 6/.2*(' /, ;&0-03 <5 !3,7<03

8!9 !,*/, ;5<03/, /(!4.2 8&;3/ -&;;*1 , M ,/3.*("6/.2*(' /,8 1;703 &

316*1*3 (**D;5(!-7/*./, (*.* A2/;!=*1 &</0. $ N &41 A&3 &,(**1" 6&4 /, &1(!&4 2(**36&;7/*63 /, 2!3 2&=* -/6* 1/A4./ 03 W " (1 6 O!=? O=!@ g 2*5 &(* 4/.04&..(&-F .!=* &41 .2* /4* /4 ;6 3!3 !3 /, 7*-0;!&(' !4.*(*3. &3 !.3 603!-&; -/67/3!.!/4 !3 !41!-&.*1 &--/(1!4>./ .2* &4-!*4. 4/.&.!/4 f (04-23 " !!!" @T@" *;;*(6&44 : " "1*3 5 ":) 77 $ @?g

`3.(& &0>2.*(' /, (B3!-2.2/4# @9 2* 3077/(.*1 2*(' ,&6!32*1 ,&.2*(' <5 *6F 7;/5!4> .2* 7/A*(' ./ -2&4>* 2*(3*;' !4./ &45 ,/(6 32* 7;*&3*1 .2* >!,./, 2*(*;/=*(' /3*!1 4 2*;*.2*(3*;,<* 3/;1 !4 =&(!/03 ,/(63 &41 .2*4 &;A&53 (*.0(4*1 ./ 2*(' ,&.2*(' f =!1 =!!! U R"RRCg

.J 2 077*(' -/;064 &.' .2* 077*(' &41 ;/A*(' *41 /, .2* /6&4 -!(-03 (/04,! A2!-2 .2*-/67*.!./(3 030&;;5 2&1 ./ 1(!=* 3*=*4 .!6*3 #$; 03 @ &

V.J>*!.4;J 4 .2*4!&4 ,*3.!=&; !4 2/4/0(' /, 7/;;/ # 2

*.&; (.!3.!- /(D !4)

.&0;"3 & /) #6

. -2 0 &41 5

.!3 # H /043;!9 &0>2.*(' /, -*&403 ,!(3. A!,* /, L*03 <5 A2/6 32* A&3 1*=/0(*1 &3 2* ,*&(*1 32* A/0;1 <*&(' & 3/4 6!>2.!*(' .2&4 2!63*;," A2*(*07/4 .2*4* # 37(&4> ,(/6 .2* 2*&1 /, .2* >/1

./**!' 2* 4&6* >!=*4 &. .2*43 ./ &;!*43 8/.2*(' .2&4 3;&=*39 (*3!1*4.!4 ..!-& 2*4 .2* .&.* A&3 6/3. ,;/0(!32!4>' .2*5 406<*(*1 &3 6&45 &3 &10;' 6*4 2* ,&=/0(&<;* 7/3!./4 /, .2*43 ,/(' -/66*(-* &41 .2* (!-2 /77/(.04!.!*3 ,/(' -&((K!4> /4 .(&1* &41 ,/(' 3*;;!4> 6*(-2&41!3* !410-*1 </.2 (**D3 &41 <&(F <&(!&43 ./ 3*..;* .2*(* 2* .2*4!&43 <*F 3!1*3 2&1 .2* (*70.&./4&6/4> .2* (**D3 /, <*!4>,(!*41;5 ./A&(13 ,/(*!>4*(3 /(' .2* ;*>&; 7(/.*-.!/4 >(&4.*1 .2*6 <5 .2* .&.* .2*5 7&!1 &30 6 /, .A*;=* (f 3g &440&;;5 ,/(' *&-2 6&4 &41 2&; &3 60-2 ,/(' *&-2 !41*7*41*4. A/6&4 &41 .2*5 2&1 ./ -2/3* & 7&./4 # ./ -/410-. .2*!(' 1*&;!4>3 A!.2 .2* .&.* !4 &;' 70<;!- &41 7(!=&.* &,,&!(3 1 .2* <(!4>!4> &4 &-.!/4 2/*=*(' ,&!;*1 ./ 1/ .2* /4* /(' .2* /.2*(' A&3 066/4*1 <*,/(* & ;&A-/0(.' &41 !,' >0!;.5 3/;1 &3 &3;&=* 2*5 A*(* 7(/2!<!.*1 ,(/6 6&((5F !4> -!.!Q*43 &41 ,(/6 /<.&!4!4> ;&41*1 7(/7*(.5 <0. .2*5 -/0;1 ,/;;/A &45 .(&1* .2*5 7;*&3*1 /7&56*4. /, & **(.&!0 .&0 2*5 &;3/ 2&1 ./ 7&5 .2* *0.(&/(1!4&(5 .&0*3 ,/(' A&(' &41 A*(* /<;!>*1 ./ >/ /4 6!;!.&(5 3*(=!-* *!.2*(' !4 .2* ,;**.' /(' !4 .2* ;&41"&(65 .2*5 6!>2. <* 2/7;!.*3 <0./4/. D4!>2.3 .' ,*3.!=&;3 !. A&3 .2*!(' 10.5 ./ ,/;;/A .2* 7(/-*33!/43 -&((5!4> 30432&1*3 7!.-2*(3 &41 </A;3 /(' .(&53 8,!;;*1 A!.2 2/4*5 /(' -&D*39 1*-(** /, .2* 7*/7;* -/0;1 !4 (*.0(4 ,/(' 37*-!&; 3*(=!-*3 -/4,*(' /4 .2*6 .2* 4 < A2!-2 7;&-*1 .2*6 /4 &;*=*;, A!.2 .2* -!.!Q*43 A!.2 (*>&(1 ./ H;!.0(>!*3 I /(' 70<;!-' <0(1*43 ,(**1 .2*6 ,(/6 .2* 4*-*33!.5 /, 2&=!4> &7&.(/4 /(' 7&5!4> &.&O ,/(' 7(/.*-./4 &41 >&=* .2*6 .2* (!>2./, 2/;1!4> 7(/7*(.5 !4 ;&41 &41 /, .(&43&-.!4><03!4*33 A!.2 .2* 7*/7;* /(' .2* &0.2/(!.!*3B A!.2/0. &4 !4.*(6*1!&(5 <0. *=*4 .2!3 7(!=!;>*1 -;&33 1!1 4/.7/33*33 .2* &-.!=* (!>2.3 /, &-!Q*4

./4 (**D &3.(/4/6*(' /, .2*43 !43.!.0.*1 !4 C @ .2* -5-;* /, 4!4*.**4 5*&(3 -&;;*1 &,.*(' 2!6 ! .A&3 !4.*41*1 ./ (*-/4-!;* .2* ;04&(' &41 .2&3/;&(' 5*&(W B V ;04&(' 6/4.23 /, @T /(' N 1&53 8/4 &4 &=*(&>* @T W"9_$T 3/;&(' 5*&(3 /, ?VB 1&53 2!3 -5-;* A&3 4/. &1/7.*1 &. .2*43 .!;;' 60-2 ;&.*(' 7(/<&<;5 !4 - N #$ "

*./7*3W *!.2*(' H .2* !4.*(=*4!4> /7*4!4>3 I /(' 8 !.(0=' !=' @' C9 H .2* 37&-*3 <*.A**4 .2* 3/-D*.3 I 8 (' 4 /(!-' &(-2!.*-.0* .2* 37&-*3 <*.A**4 .2* .(!F >;5723 # !4 .2*,(!*Q* 2*5 A*(* /(!>!4F &;;5';*,.' /7*4 203 (*3.*3 6&4&>*3./6&D*

2!3 A&5 !4./ .2 &0(!- .*67;* /, (.*6!3 .2(/0>2 /4* /, .2*3* /7*4!4>3 8 0(' ' (' +' $$ 9 2*5 A*(* &,.*(A&(13 ,!;;*1 A!.2 7&4*;3 /, A//1 A2!-2 A*(* !4 -/0(3* /, .!6 * 307*(3*1*1 <5 7;&!4 3;&<3 /, 6&(<;* &3 !4 .2* .*67;*3 &. 3*3.06 *.- 2*3* 3;&<3 A*(* 3/6*.!6*3 3;!>2.;5 /(4&6*4.*1 A!.2 &(/041 32!*;1 !4 ;/A (*;!*, &3 !4 .2* ,(!*Q* /, .2* .*67;* /, L*03 &. ;567!& /(* ,(*:0*4.;5 .2*5 A*(* ,!;;*1 A!.2 ,!>0(*3 !4 (*;!*, &3 !4 .2/3* /, >;!403 83** -0 " ,!> $9 &41 /, .2* 2*3*06 &41 .2* &(.2*4/4 # 2* .*(6 !3 &;3/ &77;!*1 ./ 3!6!;&(;5 3-0;7.0(*1 3;&<3 4/. 7;&-*1 <*.A**4 .2* .(!>;5723 <&. /4 .2* A&;* /, .2* &3 !4 .2* .*67;* /, L*03 &. ;567!& 5 * & @ & ,!> g *.(V>K((.! 2* =&>(&4. <*>>!4>7(!*3.3 /, 2*&!&

.(*. 3 2* ;&(>*3. ;!:0!1 6*&30(* /, .2* (**D3 &;!..;* ;*33 .2&4 4!4* >&;;/43 .3 -2!*, 30<1!=!3!/43 A*(* .2* ((H . 1 ! . 1 (&1! *Q*4.!43 f/(" [^!4>/, &*(* !4 .(0(!&" 2* &!1*1 0(403 /, (1*&!&>&!43. !;4*&3 <0. A&3D!;;*1 !4 <&..;* <5 .2* ;&..*(/(<5 2!3 3/4 3-&4!03

!1&3 4 /;1 2(5>!&4 D!4> 3/4 /, /(1!&3 &41 B<*;* !4 A2/3* 2/4/0(2* !3 3&!1 ./ 2&=* ,/041*1 &. *67;* &41 !43.!.0.*1 7(!*3.3 &. *33!403 2*4 .2* 1(04D*4 !;*403 2&1 ;/3. 2!3 A&5 &41 3.(&5*1 !4./ !1&3 (/3*">&(1*43 .2* D!4> <(/0>2. 2!6 <&-D ./ !/45303 8 --/(1!4> ./ &4/.2*(;*>*41 .2* D!4> 6&1* 2!6 1(04D <5 6!4>;!4> A!4* A!.2 .2* 37(!4> !1&3 &41 3/ -&0>2. 2!6 .2& .2* 6!>2. 7(/72*35 ./ 2!6 !/45303 >(&4.*1 !1&3 .2* ,0;F ,!;6*4. /, 2!3 A!32 .2& .2* ./0-2*1 6!>2. .0(4 ./ >/;1 0. 2!3 =*(5 ,//1 &41 1(!4D A*(* -2&4>*1 &. 2!3 ./0-2 3/ .2& 2* 7(&5*1 .2* >/1 ./ &D* &A&5 .2* ,&.&; >!,. . .2* >/1 3 -/6 6&41 2* <&.2*1 !4 .2* &-. ;03 A2!-2 *=*(&,.*(<*-&6 * (!-2 !4 >/;1 4 .2* 603!-&; -/4.*3. <*.A**4 &(35&3 8/(&4 &41 7/;;/ 2* 1*-!1*1 ,/(.2* ,/(6*(/4 A2!-2 &--/04. .2* >/1 >&=* 2!6 .2* *&(3 /, &4 &33 * -/4-*&;*1 .2*6 <*4*&.2 &2!>2 -&7 3/ .2&. /4;5 2!3 <&(<*(D4*A &</0. !. /A*=*(2* -/0;1 4/. D**7 .2* 3*-(*. ,/(&45 ;*4>.2 /, .!6* &41 &. ;&3. 32/0.*1 !. !4./ &2/;* .2&. 2* 2&1 10> !4./ .2* >(/041 * (**13 >(*A ,(/6 .2!3 2/;* &41 A2!37*(*1 .2* 3*-(*. ./ &;; .2* A/(;1 2!;* .2!3 ;*>*41 6&D*3 !1&3 2!6F 3*;;&77*&(&3 /4* /, .2* !;*4! <*;/4>!4> ./ .2* .(&!4 /, !/45303 8.2* &33 <*!4> /4* /, .2*!(&..(!<0.*39 .2* /.2*(7/!4.3 ./ 2!6 &3 .2* ,&=/0(!.* /, .2* 1!=!4!.5 A2/3* ,!(3. 7(!*3. 2* A&3 1**6*1 ./ <* &41 A2/ 32/A*(*1 (!-2*3 07/4 2!6 !;J4!14 8 (< " 2* ,&!.2,0; ;/=*(/, .&;&4.* # ;;;&(!.;6 ;;2* /6&4 6!;*3./4* &3./4* -/;064 30-2 &3 A*(* 3*.07 &.*!4.*(=&;3 /, $ NNN # 7-.33 ![V NNN /6&4 ,**./4 .2* 6!;!.&(5 (/&13 7&(.;5 10(!4> .2* ;&3. 5*&(3 /, .2* *70<;!-* &41 (*>0;&(;5 3!4-* 0>03.03 2A >&=* !4 406<*(3 030&;;5 7(*-*1*1 <5 & .2* 1!3.&4-* ,(/6 .2* 7;&-* ,(/6 A2!-2 .2* 6*&30(*6*4. A&3 6&1* <*3!1*3 !.3 4&6* &41 .2&. / , .2* 7*(3/4 A2/ 2&1 -/43.(0-.*1 .2* (/&1 /(* *(*-.*1 .2* 6!;*3./4* &41 /, .2* *67*(/(! 4 A2/3* (*!>4 .2* (/&1 2&1 <**4 6&1* >(*&. 406<*(/, .2*3* 6!;*F 3./4*3 4 *=*(5 7&(. /, .2* /6&4* 67!(* 2&3 <**4 7(*3*(=*1 &41 &;3/ .2* <&3* /, .2* -*4.(&; -/;064 /, >!;. <(/4Q* # " * (*-.*1 <5 0>03.03 4 .2* /(06 4*&(.2* .67;* /, &.0(4 !. A&3 (*>&(1*1 &3 .2* -*4.(* /, .2* *67!(* # ;&4 /, /(& 041*(/ 9 !;;3 8 (&. &(* 6*4F .!/4*1 f.A!-* 4 /6*(W =!! $SC OO $N?g 2* /(1!4&(5 (**D .(&1!./4 &3F -(!<*1 .2*!(4=*4./4 ./ *6*.*(2*5 -/43!3.*1 &3 6&5 <* (*&1!;5 4,*((*1 ,(/6 .2* 37*-!6*43 ,/041 4 .2* <&D*(3 32/73 &. /67*!! /, .A/ 7(!4-!7&; 7&(.3M 8 9 &,!O*1 &41 6&33!=* -/4!-&; 3./4* 8 (: &. " !(*3.!4>/4 &<&3* &41 ,0(4!32*1 &. .2* ./7 A!.2 &3./(!4>!(/4 2!=/.8,!> !9W &41 8!9 &2/;;/A 1/0<;* -/4* 8 (" &. 4 .2* 32&7* /, &4 2/0(>;&33 A2!-2 &. !.3 4&((/A*3.7&(. A&3 ,0(4!32*1 A!.2 &.2!-D 7;&.* /, !(/4 A!.2 2/;*3 4 .2* -*4.(* &41 .2* !44*(30(,&-* /, .2* -/4* &41 .2* !=/.(!<0.*3

%A&3 >(/041 &41 ,*;; !4./ & -2&44*; -0.
/041 .2* <&3* / , .2* -/4* A/ <&(3 /,
GA//1 ,&3.*4*1 ./ .2* 6!11;* /, .2* 077*(/
7&(./ A*(* 03*1 ,/(3*..!4> !. !4 6/.!/4K
.2!3 A&3 1/4* *!.2*(A!.2 .2* 2&413 /(<5
6*&43 /,&4!6&;3
&.*(6!;;3 A*(* D4/A4 !4 .2* 3.-*4F
.0(5 <0..2*5 A*(* 4/.-/6 6/4;5 03*1
.!;;.2* C.2 &41 V.2 -*4.0(!*3 &,.*(2(!3.
2* 70<;!-&:0*10-.3 3077;!*1 .2* (*:0!(*1
A&.*(2!7"6!;;3 A*(* !4=*4.*1 <5 *;!"
3&(!03 A2*4 .2* /.23 A*(* <*3!*>!4> /6*
!4 V ? 2* &4-!*4.3 2&1 4/ A!41"
4!!;;3 .2*5 &(* &4 !4=*4.!/4 /, .2* !11;*
>*3 2*(* 3** 6 ./ 2&=* <**4/ (*>0;&(
6!;;*(3 07 ./ .2* ;&.*3. -;&33!-&; .!6*3 .2*
4*-*33&(5 &6/04./, ;/0(A&3 *!.2*(7(*F
7&(*1 !4 /4* 3 /A4 2/03* <5 3;&=*3 /(/<F
.&!4*1 ,(/6 .2* <&D*(3 A2*4 .2*(* A&3
30-2 &.(&1*" .2*<&D*(3 030&;;5 A*(* &..2*
3&6* .!6* 6!;;*(3 (6!*3 /..2* 6&(-2
"-&((!*1 36&; 2&41 6!;;3 A!.2 .2*6
!6* & (*&;;5 1*4/.*3 & ,&(-!-&;
6!6!- & <0,,//4 30-2 &3 03*1 ./ 32/A
.2*63*;=*3 ,(/6 .2* *&(;!*3. .!6*3 !4 .&;5
&41 !-!;5 /4 .2* 70<;!-7;&-*3 &. 7/70;&(
G*4.*(.&!46*4.3 *.- &41 &;3/ 3*(=*1 ./
A2!;* &A&5 .2* .!6* 10(!4> 6*&;3 .
&,.*(A&(13 -&6* ./ <* &77;!*1 ./ .2* ,&(F
-!-&; !6!.&.!/4 /, 7*(3/43 &41 3-*4*3 !4
%/(1!4&(5 ;!,* 2* 6!6*3 /, .2* 5(&F
-03&4 . " A*(* -2&(&-.*("3D*.-2*3 !4
%1!&;/>0* .&D*4 ,(/6 .2* ;!,*/, .2* 7*/7;*
<0. .2*3* A*(* &. 6/3. 6*&4. ./ <* (*F
-!.*1 -*(.&!4;5 4/. ./ <* &-.*1
4 .&;5 *37*-!&;;5 &6/4> .2* &.!&43
&41 &. \B6* .2* (*7(*3*4.&.!/4 /, 30-2
,&(-!-&;3-*4*3 ,(/6 ;/A ;!,* /4 .2* 3.&>*
A&3 4/ 1/0<.&3 /;1 &3 .2* 3.&>* !.3*;," &41
63 >(*&. &3-/7* A&3 &. &;; .!6*3 >!=*4 ./
!67(/=!3&.!/4 !4 .2*3* &3 !4 .2* "
,(/6 A2!-2 .2* 6!6*3 6&!4;5 1!,,*(*1 !4
4/. <*!4> -/4,!4*1 ./ 3./-D"-2&(&-.*(3 #
&*&(. /6* .2* 6!6* A&3 ,/(
6 ;/4> .!6* -/4,!4*1 ./ ,!,.2"(&.* .2*&.(*3
%<0.!4 -C?!.&77*&(3 ./ 2&=* /03.*1 .2*
" &3 &4 !4.*(;01* &41 &,.*(7!*-* /4
.2* 6/(* !67/(.&4. 3.&>*3 &41 (*-*!=*1 &.
.2* 2&413 /,5 ; &41 , (2
B' &.*-24!-&; 1*=*;/76*4./ /4 .2*
;!4*3 /, .2* *0!3.!4> D!413 /, 1(&6& 2*
4&.!=* 4&6* ,/(.2*3* 4&.!/4&; ,&(-*3 A&3
"3 7(/<&<;5 <*-&03* .2* 7*(,/(6*(3
"&77*&(*1 " ! * !.2/0. .2*
.2*&.(!-&; 32/*3 03*1 !4 .(&>*15 &41
G-/6*15 2*(* A*(* &;3/ 4/ 6&3D3 .2*
03* /, A2!-2 A/0;1 2&=* /, -/0(3* (*4F
1*(*1 !67/33!<;* .2* 7;&5 /, .2* ,*&.0(*3
A2!-2 !3 30-2 &4 !67/(.&4. 6*&43 /, !6!F
.&.!/4 2*-/3.06* A/(4 A&3 .2* " "2
&D!41 /, 2&(;*:0!4 3 1(*33 &41 .2*
"3 &7*-0;!&(;!..;*-;/&D /4.(&(5
./ .2* -03./6 !4 ; /.2*(1(&6&.!- 7*(F
,/(6&4-*3 .2* ,*6&;* 7&(.3 A*(* (*&;;5
.&D*4 <5 A/6*4 A2/ ;!D* &;; .2* &-./(3
!4 6!6*3 A*(* !4 =*(5 <&1 (*70.* *F
3!1*3 .2* -2!*,&-./(/(32
A2/ 2&1 ./ -&((5 .2(/0>2 .2* 7;/.
.2*(* A&3 &;A&53 &3*-/41 7*(,/(6*(A!.2
&-;*&4"32&=*4 2*&1 A2/3* 7&(. !3 -2&(&-F
.*(!Q*1 <5 .2* 4&6*3 >!=*4 2!6
/(3 8,//;9 2* 6!6*3 A*(* &-.*1
/4 .2* ,(/4. 7&(./, .2* 3.&>* A2!-2 A&3
1!=!1*1 ,(/6 .2* <&-D 7&(. <5 & -0(.&!4
& 3 .2*5 1*7!-,*1 .2* ;!,* /,
.2* ;/A*(-;&33*3 &41 &3 !. A&3 .2*!(-2!*,
&!6 ./ (/03* .2* ;&0>2.*(/, .2* 37*-.&./(3
!4 *=*(5 7/33!<;* A&5 .2*5 A*(* ,0;; /,
7;*<*!&4 *07(*33!/43 &41 .0(43 &41 &"
</041*1 !4 .2* 6/3./0.(&>*/03 <0,,//4*!5
&41 /<3-*4!.5 -2*&.!4> &41 &10;.*(5"A*(*
.2* ,&=/0(!.* 30<K*-.3 4 7&(.!-0;&(.2*
1&4-*3 .2&./--0((*1 !4 .2* 6!6*3 A*(*
(*6&(D&<;* ,/(.2* *0.(&=&>&4-* /, .2*
>(!6&-*3 &41 .2* 1!3>03.!4> 4&.0(* /, .2*
>*3.0(*3 A!4> ./ .2* -/4.!40&;;5 1*F
>*4*(&.!4> .&3.*3 /, .2* /6&4 70<;!- .2*5
&41 .2* 7&4./6!6*3 *4K/5*1 .2* >(*&.*3.
7/70;&(!.5 10(!4> .2* 67!(* *37*-!&;;5
&3 2*(* 4/ ;*33 .2&4 !4 .2* &
-*(.&!4 ,(**1/6 /, 37**-2 A&3 3/6*.!6*3
7*(6!..*1 &41 &6/4>1(&6&.!- (*7(*3*4.&F
.!/43 7(/7*(.2*5 /--07!*1 .2* ,!(3.7;&-*
!6!&6<! A & (*
!64*(603 , ; 72/4 .2* -(*&./(
/, .2* *(/.!-.57** /, (**D *;*>5 &4 /;1*(
-/4.*67/(&(5 /, /;/4 2* ,;/0(!32*1 &</0.
/ ? N"?]9 *>&=* 2!3 -/;;*-.!/4 /, ;/=*
;>!*3 .2* 4&6* /, .2* <*&0.!,0; ,;0.*"
7;&5*(&44/ A2/ /4 &--/04. /, 2!3 &1F
=&4-*1 &>* A/0;1 4/. (*.0(4 2!3 ;/=*
2*(* &(* /4;5 & ,*A ,(&>6*4.3 /, 2!3
7/663 ;*,.* .2*!(-2!*, .2*6*3 &(* .2*
6*;&4-2/;5 -/67;&!4. /, /;1 &>* &<&41/4*1
<5 ;/=* .2* .(&43!./(!4*33 /, .2* ;!,* /,
6&4 &41 .2* *02/(.&!/4 ./ *4K/5 5/0.2
.2* &>* /, ;/=* !3 ;&4>0&>* !3 3!67;*
&41 .*41*(&41 .2* &4-!*4.3 .2*(*,/(*
-&;;*1 2!6 .2* 3A**.3!4>*(W; 1
!4 /;/4 3 ;!4*3 ./ !64*(603 *(>D 3
, ; : /;/4 ,(&>6 @Sg
!4&8 (" &. " 4 /;1
(**D A*!>2. &41 &30 6 /, -/!4*1 6/4*5
:0&;./ !. .2 3!O.!*.2 7&(./, &.&;*4.
;!D* A2!-2 !.=&(!*1 !4 =&;0* 2* A*!>2.
/, .2* " #3 (A&3 W;<
&41 .2* !4.(!43!-=&;0* /, .2* ..!-6!4&/, /,
3!;=*(A&3 V=Q%F) # $ *&1 (

!4*(=&' 2*' .&;!&4'>/11*33' /,'!4.*;;!F >*4-*' 6*1!.&.!/4' &41'!4=*4.!=*4*33' :0**4' /,'&;;' &--/67;!326*4.3' &41' &(.3' *37*-!&;;5' /,' 37!44!4>' &41' A*&=!4>' &3' 7(&-.!3*1' <5' A/6*4' 2*' A&3' &;3/' .2*' 7&.(/4">/11*33' /,',0;;*(3' 15*(3' -/<<;*(3' -&(7*4.*(3' 6 03!F -!&43' 3-0;7./(3' 7&!4.*(3' 7253!-!&43' &-./(3' 7/*.3' 3-2//;6&3.*(3' &41' *37*-!&;;5' /,' 3-2//;-2!;1(*4' *(' /;1*3.' &41' 6/3.' !6F 7/(.&4.' 3&4-.0&(!*3' A*(*' &.' /(4*' /4' .2*' 2!;;3' /,' .2*' ./A4" /4' .2*' &7!./;' A2*(*' 32*' /--07!*1' .2*' -2&6<*(' /4' .2*' (!>2.' !4' .2*' >(*&.' .*67;*' -/66/4' ./' 2*(' A!.2' 07!.*(' &41' 04/" /4' .2*' =*4.!4*' A2*(*' .2*' /,!-!&;' 6**.!4>' 7;&-*' ' 7/*.3' &41' &-./(3' A&3' 3!.0&.*1' &41' /4' .2*' &*;!&4' *(' -2!*,' ,*3.!=&;' &3' .2*' T " ' ' 4' .2*' -/0(3*' /,' .!6*' .2*' !"**D' -/4-*7.!/4' >&!4*1' 6/(*' >(/041" !4*(=&' A&3' !1*4.!,!*1' A!.2' &;;&3' .2*4`' 2!3' -*(.&!4;5' 2&77*4*1' A!.2' (*>&(1' ./' .2*4*' -/43!1*(*1' &3' .2*' <*3./A*(' /,'=!-./(5' &41' </!.5' A2*4' /67*5'*(*-.*1'&'.*67;*' ./'2*(' ,(/6' .2*' <//.5' A/4' !4' 2!3' &3.*(4' -&6F 7&!>43' 41' 0>03.03' 603.'2&=*' (*>&(1*1' 2*(' &3' .2*4*' .2*' /043*;;/(' A2*4'2*' &11*1' ./2!3' $ ' '&=*3.!<0;*' 1*1!-&.*1'./ !4*(=&' 2*' ^/6&4' !4*(A.'A&3' (*7(*F 3*4.*1' !4' &(.' !4' .2*' 3&6*' 6&44*(' &3' .2*' (**D'>/11*33' # ' !4*(=&;' 2*' 3-2//;',**' &6/4>' .2*' ^/6&43' & ' T [) (!4/3' ' 65.2!-&;'D!4>'/,' (*.*' .2*' -*4.(*'/,'.2*'/;1*3.';B*413'/,'.2&.'!3;&41' *'!3' .2*' 3/4' /,' L*03' &41' /,' 0(/7&" !4' /6*!' '<(/.2*('/,' 2&1 6&4.253',&.2*('/,' *0-J;;/4'&41' (!&14*' &41'>(&41,&.2*('/,' 116*4*03' *3!1!4>'&.' 4/3303'&3' .2*' H',&6!;!&(',(!*41' /,' L*03 I' 2*' 2&1'&'H'4!4*" 5*&(;5I' (0;*' /=*(' .2*' ,;/0(!32!4>' !3;&41' W ' O!O' $UTg' &4' *07(*33!/4' A2!-2' ;&.*(' >*4*(&.!/43' *07;&!4*1'&3'3!>4!,5!4>'7*(!/13' /,'4!4*'5*&(3" &.'.2*'*41'/,' A2!-2'2*' A*4.' !4./' &' -&=*' 3&-(*1'./'L*03'!4' /(1*(' ./2/;1' -/4=*(3*' A!.2' 2!3',&.2*(' &41' ./' (*-*!=*' .2*' ;&A3',/(' 2!3' !3;&41' 03.' &3' 2*' A&3' .2/0>2.' ./' <*' .2*' ,(&6*(' /,' .2*' ,&6/03' /;1*(' (*.&4' -/43.!.0.!/4' 3/' 2*' A&3' &;3/' -/43!1*(*1' &' ,/041*(' /,' .2*' 4&=&;' 307(*F 6&-5' /,' (*.*' <*,/(*' .2*' .!6*3' /,' (/5W *3!/1' -&;;3' 2!6' .2*' H 6!>2.!*3.' D!4>' /,' &;' 6/(.&;3 I' A2/' (0;*3' A!.2' .2*' 3-*7.(*' /,' L*03' /=*(' 6/3.' /,' .2*' 4*!>2</0(!4>'7*/7;*3' &.*(' ;*>*41' >!=*3' 2!6' &4/.2*(' </(.2*(' &(7*1/4' &41' &' 406<*(' /,' -2!;1(*4'&6/4>' /.2*(3' 41(> /3' ;&0-03' &.(*03' &41' 2&*1(&' <5' 2!3' A!,*' &3!72&*' &' 1&0>2.*(' /,' *; 3' &41' *(3*;3' 2*4' &,.*(' .2*' 1*&.2' /,' 3. (!/4' .2*' 203<&41' /,' 0(/7& 2*' 2&3' 1(!=*4' &A&5' 2!3' <(/.2*(3' !4' -/43*F :0*4-*' /,' &' :0&((*;' 2*' 3*!Q*3' .2*' D!4>32!7" /,' (*.*' !4' A2!-2' 2*' !3' 3077/(.*1' <5' 3*!1/4' A2/' /4' 2!3' 7(&5*(' .2&.' 2*' 32/0;1' 3*41' 2!6' &' <0;;' ,/(' 3&-(!,!-*' -&03*3' &' A/4F 1*(,0;;5' <*&0.!,0;' 34/A"A2!.*' <0;;' ./' (!3*' ,(/6' .2*' 3*&' 0.' &3' 2*' 1*3!(!4>'./'D**7'!.' ,/(' 2!3' /A4' 2*(1'3&-(!,!-*3' &4/.2*(' .2*' >/1' ./' 704!32' 2!6' !437!(*3' 2!3' A!,*' &3!72&*" & ' A!.2' ;/=*' ,/(' .2*' <0;;' /6*('W ' O!' @@g' -&;;3' !4/3' .2*' H' 6*1!.&./(' /,' *=!;'I " !4' ;&.*(' .!6*3' 2*' A&3' (*7(*3*4.*1' &3' &' 2&(1"2*&(.*1' &41' -(0*;' .5(&4.' *37*-!F &;;5' /4' .2*' ..!-' 3.&>*' <*-&03*' /,' .2*' 7&(.' 2*' 7;&5*1' !4' ..!-' ;*>*413' 4' &--/04.' /,' .2*' 60(1*(' /,' 2!3' 3/4' 4 (>*/3' &' :' &.' .2*43' 2*' 041*(.//D' &4' *07*1!.!/4' /,' (*=*4>*' &>&!43.' ..!-&' -&7.0(*1' *> "(' . ' !3039' &41' -/67*;;*1' .2*' .2*4!&43' ./' 3*41' 2!6' /4-*' !4' *=*(5' 4!4*' 5*&(3' 3*=*4' </53' &41' 3*=*4' >!(;3' ./' (*.*g./' <*' 1*=/0(*1' ' .2*' !4/.&0(' & " ' ' ') ' 2&1!.!/4' 6&1*' 2!6' 1!*' !4' !-!;5 "A2!.2*(' 2*' 2&1' 70(30*1' &*1&;03' & ' /4' 2!3',;!>2.' &41' A2*(*' D!4>' -&;03' /(' 2!3' 1&0>2.*(3' 3.!,;*1' 2!6' !4' &' 2/.' <&.2' !3' (*.&4' ,/;;/A*(3' !4.*((*1' 2!6' 4*&(' >(!>*4.06' A2*(*' 2!3' >(&=*' A&3' 32/A4' 4' /6*(' W ' O!' V?Rg' 1533*03' 3**3' 2!6' !4' &1*3" A!.2'&'>/;1*4'3-*7.(*' !4' 2!3' 2&41'K01>!4>' .2*' 32B*3" 2*' 1/*3' 4/.' &77*&(' !4' .2*' ;*>*413' &3' K01>*' /,' .2*' 1*&1' <5' .2*' 3!1*' /,')&-03' &41' 2&1&6&4.253' .!;;' ;&.*(' f &./' ' C$' ' 6 ' V@' ' Q$;41.&0(43'8!*' ' ' " ' /4' /,' 3!72&*' & ' &41'&'<0;;" &' 6/43.*(' A!.2' .2*' 2*&1' /,'&' <0;;' &41' .2*' </15' /,'&' 6&4' !4/3' -/4-*&;*1' !.' !4' .2*' ;&<5(!4.2' <0!;.' 4*&(' 4/3303' <5' &*1&;03' &41' >&=*' 2!6' &3' ,/!1' .2*' -(!6!4&;3' &41' .2*' 5/0.23' &41' 6&!1*43' 3*4.',(/6' .2*43' &3' &' .(!<0.*' .!;;' 2*3*03' <5' .2*' 2*;7' /,' (!&14*' 7*4*.(&.*1' !4./' .2*' ;&<5(!4.2' &41' D!;;*1' .2*' !4/.&0(' .'2&3' <**4' 7/!7.*1' /0.' .2&.' 2*' !3' .2*' 3&6*" &3' .2*' 2/*4!-!&4' ' (' &;3/' (*7(*F 3*4.*1' A!.2' &' <0;; 3' 2*&1' &41' 3077;!*1' A!.2' 206&4' 3&-(!,!-*3' 2!3' A/(32!7' A&3' 70.' &' 3./' ./' <5' (**D' -!=!;!Q&.!/4' A2!-2' 6&5' <*' -/43!1*(*1' A!.2' &;;' .2*' 6/(*' (*&3/4' ./" <*' (*7(*3*4.*1' <5' 2*3*03' &3' !4' /;1*4' 1&53' .2*' ..!-' -/&3.' A&3' 7*(2&73' &-.0&;;5' /--07!*1',(/6' .!6*' ./' .!6*' <5' (*.&4' /(' 2/*4!-!&4' 3*..;*(3' A2/' 3*4.' 206&4' 3&-(!F ,!-*3' ./' (*.*' &3' .2*!(' (*;!>!/03' -*4.(*' ;4 -;03' *;!O'&T " ' 2*',!(3.' &.!4' 2(!3.!&4'&0.2/(' &' 6&4' /,' *0-*;;*4.' *10-&F .!/4' &41' &' 1!3.!4>0!32*1' ;&A5*(' &.' /6&' ,.*(' <*-/6!4>' &' 2(!3.!&4' &.' &4' &1=&4-*1' &>*' 2*' A(/.*' !4' .2*' 3*-/41' 2&;' /,' .2*

@41 -*4.0(5 & 1!&;/>0* *4.!.;*1 !4 A2!-2 2* &!63 &. (*,0.!4> .2* /<\(*-.!/43 (&!3*1 &>&!43. 2(!3.!&4!.5 2* A/(D !3 6&(D*1 <5 70(!.5 / , 1!-.!/4 &41 <5 &-0.*F 4*33 &41 7(*-!3!/4 / , &(>0 6 *4.

4B ,!3 2* 1&0>2.*(3 / , !45&3 .2* (!-2 D!4> / , (-2/6*403 &41 65.2!-&; &4-*3.(&; 2*(/ / , .2* (&-* / , .2* !453** .2*!(4&6*3 *(* (8 ;-;.2/*9 ; 1 &41 2*4 .2* A/(32!7 / , !/45303 A&3 !4.(/10-*1 !4./ 6/.!& &41 &; .2* /.2*(A/6*4 A&41*(*1 !4 ,(*405 /=*(.2* 6/04.&!43 !4 2/4/0(/ , .2* >/1 .2*5 &;/4* (*6&!4*1 &. 2/6* &41 7(/,&4*1 .2* ,*3.!=&; <5 A/(D!4> &. .2*!(;//63 !4 37!.* / , .2* A&(4!4> / , .2* >/1 A2/ 2&1 &77*&(*1 ./ .2*6 !4 .2* 32&7* / , & 6&!1*4 . A&3 4/. .!;; 2* 2&1 &3306*1 .2* 32&7*3 / , & <0;; & ;!/4B &41 & 7&4.2*(2&1 6&1* 6!;D &41 A!4* ,;/A ,(/6 .2* 5&(4<*&63 &41 2&1 -2&4>*1 .2*!(A*, . !4./ >(&7*3 &41 =!4*";*&=*3 .2&. .2*5 A*(* .*((!,!*1 &41 1(*A ;/.3 A2/ 32/0;1 7,,*(& 3&-(!,!-* ./ .2* >/1 &41 *0-!77* /4 A2/6 .2* ;/. ,*;; ./(* 2*(/A4 3/4 !77&303 ./ 7!*-*3 !4 2*(&--2!- ,0(5 2*5 .2*4 (&>*1 &</0. /4 .2* 6/04.&!43 .!;; .2*5 A*(* .(&43,/(6*1 !4./ <&.3 !.2 .2!3 ;*>*41 A&3 -/44*-.*1 .2* -03./6 .2&. &. .2* &440&; ,*3.!=&; /, !/45303 .2* 7(!*3. /, .2* >/1 A&3 &;/A*1 ./ 70(30* .2* A/6*4 / , .2* !45&4 (&-* A!.2 & 1(&A4 3A/(1 &41 D!;; .2*6 f ;!&4 = !!! C@ ;0.&(-2 T 6 R =!-< !; *. ! = $"CN TN"C$V g

!(((/(3 /(6!(((/(3 .2* &4-!*4.3 03*1 (/041 (/=&; &;3/ 3-B0&(* 7;&.*3 / , 6*;.*1 &41 7/;!32*1 6*.&; >*4*(&;5 / , -/77*(6!0*1 A!.2 .!4 Q!4- &41 /.2*(6&.*(!&;3 /,.*4 3!;=*(*1 &41 >!;1*1 4 ;&.*(.!6 B

8$ @ $ a ^ !&
8 =*(<*-D 3 /67*!! 7 CNC $RUV9

.2*5 A*(* &;3/ 6&1* / , 6&33!=* 3!;=*(2*5 A*(* /,.*4 7(/=!1*1 !.2 &1*-/(&.*1 2&41;* &41 /(4&6*4.*1 /4 .2* <&-D A!.2 *4>(&=!4>3 6/3.;5 / , 65.2/;/>!-&; /<\(*-.3

-0.39 2* .(03-&4 6!(((/(3 &(* !4 .2!3 (*37*-. (*6&(D&<;5 ,!4* f.2* ,!4*3. / , &;; !3 (*7(*3*4.*1 !4 ,!> C *3!1*3 .2*3*

8C9 ^
8 *5;!4 03*06 9
1(*.-!.2 :2 L 5 ":

2&41"6!(((/(3 .2*(* A*(* &;3/ !4 .2* .!6 * / , .2* *67*(/(3 6!(((/(3 &3 2!>2 &3 & 6&4 f *4*-& > T ! ;U -7 SO!4.!;!&4 O! ^ " g A2!-2 A*(* *!.2*(7*(6&4*4.;5 ,!0*1 !4 .2* A&;; /(f&3 !4 !.(0= !O ^ !g ;*. 07 &41 1/A4 ;!D* & 3&32

W6 @ 04D4/A4 ./ &(-2&*/F ;/>!3.3 04.!; $R?U A2*4 .2* ,!(3. 37*-!6*4 A&3 1!3-/=*(*1 &. /(!4.2 4 1*3!>4 .2*5 &(* *=*4 6/(* <*&0.!,0; .2&4 .2/3* / , .(0(!& 2*5 &(* / , .A/ D!413 8&9 !D* .2* .(03-&4 6!(((/(3 .2*5 &(* >*4*F (&;5 (/041 -/43!3.!> / , &3!4>;* 1!3- A!.2 & 7/;!32*1 -/4=*0 ,(/4. ./ (*,;*-. .2* ,&-* &41 & -/4-&=* <&-D (/4&6*4.*1 A!.2 ,!>0(*3 .(&-*1 A!.2 .2* *4>(&=*(3 < (!4 2!3 =&(!*.5 2&1 & 2&41;* !4 .2* ,/(6 / , & 3.&.0*..* (*3.!4> /4 & 7*1*3.&; 82 4/.2*(=&(!*.5 *37*-!&;;5 ,(*:0*4.! 4 (**-* -/4F 3!3.3 ", .A/ 6*.&;;!- 1!3-3 /4* !4-;/3*1 A!.2!4 .2* /.2*(&41 3/6*.!6*3 2*;1 ./>*.2*(<5 & 2!4>* 2* -/=*(A&3 *0.*! 4&;;5 /(4&6*4.*1 A!.2 ,!>0(*3 !4 ;/A (*;!*, &41 A&3 !4.*(4&;;5 7/;!32*1 &41 3!;=*(*1 ./ (*,;*-. .2* ,&-* 2* 3*-/41 1!3- ,/(6!4> .2* </15 / , .2* -&3* A&3 1*-/(&.*1 !4.*(4&;;5 A!.2 ,!>0(*3 *4>(&=*1 A!.2 & 32&(7 7/!4. / !>4/4 3 6 (1: ,!> $? ; < &41 $ "2 (7*(3/4!,!*1 /4 &4 *4>(&=*1 6!((((&41 ,!> $ U & ,!4* (*;!*, / , &456*1* &41 .2* *&>;* 4 .2* (!.!32 03*.!6 A* 2&"=* & 6!(((/(,!/6 /(!4.2 (*7(*3*4.!4> &4 7;&5!4> &. .2* >&6* / , H !=* ./4*3 I

with a Nymph attended by Erōs (Bronze Room, table-case D).]

Missio. The Roman term for the dismissal of soldiers from service, whether on account of illness (*missio causārĭa*) or of some dishonourable offence (*missio ignōmĭnĭōsa*), or at the expiration of their period of service. The last-mentioned, *missio hŏnesta* or honourable dismissal, carried with it, under the Empire, the maintenance of the dismissed soldier. At first a fixed sum of money was given him, afterwards a parcel of land in Italy or the provinces was assigned; he also received the rights of citizenship, if he did not already possess them, and the privilege of contracting a legal marriage. The imperial decree which contained a list of those dismissed, arranged according to the subdivisions of the army and with the privileges granted, was posted on a public building on the Capitol or in the Forum, and each one of those specified received an extract from this document, made out in the presence of seven witnesses and inscribed on a bronze *diptўchŏn* (*q.v.*). Sixty-two such military diplomas have been preserved completely or in part.

* THE SACRIFICE OF MITHRAS.
(Paris, Louvre.)

Mithrās. The Persian god of created light and of all earthly wisdom. In the course of time he became identified with the sun-god, who conquers all demons of darkness. In the time after Alexander

.2*' (*&.' 2V3 A/(32!7' 6!0*1' A!.2' =&(!/03' *&3.*(43' 7*-0;!&(' ./' *3.*(4' 3!&' A&3' *0.*41*1' /=*(' &;;' .2*' (!*4.&;' D!4>1/63' 4' .2*' ,!!"3.' 2&;;' /,' .2*' $3.' -*4.0(5' ' "' !.' !3' 3&!1' ./' 2&=*' <**4' !4.(/10-*1' !4./' .2*' /6&4' 7(/=!4-*3' !4' .2*' *3.' <5' .2*' !;!-!&4' 7!(&.*3' A2/' A*(*' &.' .2&.' .!6*' 6&3.*(3' /,' .2*' *1!.*((&4*&4' 2*(*' &(*' .(&-*3' /,' 2!3' A/(32!7' &.' /6*' 041*(' !<*(!03" &41' !4' .2*' <*>!44!4>' /,' .2*' @41' -*4.0(5' &,.*(' 2(!3.' 041*(' .2*' 4./4!,!*3' !.' <*-&6*' -/66/4' .2(/0>2/0.' .2*' A2/;*' /6&4' *67!(*' &41' A&3' D*7.' 07' .!;;' .2*' *41' /,' .2*' C.2' -*4.0(5' !.2(&3' A&3' &37*-!&;' ,&=/0(!.*' /,' .2*' /6&4' &(6!*3' *!4>' </(4',(/6' .2*' (/-D3' 2*' A&3' A/(F 32!77*1' !4' 4&.0(&;' /(' &(.!,!-!&;' -&=*3' 30-2' &3' 2&=*' <**4' ,/041' !4' *=*(5' 7&(.' /,' .2*' /6&4' *67!(*' *' !3'(*7(*3*4.*1' &3' &5/04>' 6&4' !4' /(!*4.&;' 1(*33' &41' &3' &4' !4=!4-!<;*' 2*(/' 3.&<<!4>' &' <0;;' A!.2' 2!3' 1&>>*(' /(' 3.&41!4>' /4' &' <0;;' 2*' 2&3'.2(/A4'1/A4 f !4*' 37*-!6*43' /,' .2!3' >(/07' 6&5' <*' 3**4' !4' .2*' /0=(*' &41' !4' .2*' (!.!32' 03*06' &41' *;3*A2*(*'83**' -0.9g' 2*' -&=*' !.3*;,' A&3' *07;&!4*1' <5' .2*' &4-!*4.3' ./' 3!>4!,5' .2*' A/(;1' !4./' A2!-2' .2*' 206&4' 3/0;' 603.' 1*3-*41' .2&.' !.' 6&5' <*' 7.,(!,!*1' <5' 6&75' .(!&;3' <*,/(*';*&=!4>' !.' *,/(*' &45' /4*' A&3' !4!.!&.*1' !4' .2*' 653.*(!*3' /,' !.2(&3' !.' A&3' 4*-*33&(5',/(' .2*' 7*(3/4' ./' 041*(>/' &' 3*(!*3' /,' 8!.' !3' 3&!1' *!>2.59g' .(!&;3' /,' !4-(*&3!4>' 1!,,!-0;.5" &41' &4' 041&04.*1' 0430<10*1' 37!(!.' 2&1' ./' <*' 6&!4.&!4*1' !4' ,!(*'&41'A&.*('204>*('&41'.2!(3.'3-/0(>!4>' &41' 3/;!.01*' &41' .2*' &37!(&4.' A&3' .203' 7(*7&(*1',/(' .2*' !4!.!&.!/4' .' -/43!3.*1' /,' 3*=*4' 1*>(**3' .2&.' /,' .2*' (&=*43' .2*' 3*-(*.' .2*' ,!>2.*(3' .2*' ;!/43' /(' 32*";!/43' 8,/(' A/6*4' A*(*' &;3/' (*-*!=*199g' .2*' *(F 3!&43' .2*' 304"(044*(3' &41' .2*' ,&.2*(3' &(!/03' 2(!3.!&4' (!.*3' 3**6' &;>/' ./' 2&=*' <**4' !4.(/10-*1' !4./' .2*' 653.*(!*3' /,' !.2(&3' 7!.2*.3';!D*' H' /(1'&41' (*&./(' /,' &;;' .2!4>3 I' H &.2*(' &41' 3/0(-*' /,' &;;' ;!,*' I' *4&<;*' 03' ./' (*-/>4!3*' !.2(&3'&3'/4*' .' .2*' 7&4.2*!3.!-' 1!=!4!.!*3' .' 1*-;!4!4>' 2*&.2*41/6 %!>" ' ' ? > :% .' @:% :' @ A ,' @ > ' > #,/' !: ' : "/' '

' 4*6*' ' 0) 4*613',4*' &0>2.*(' /,' (403' &41' &*&' &41' /4*' /,' .2*' !.&4!1>3' .2*' >/11*33' /,' 6*6/(5' <5' L*03' 6/.2*(' /,' .2*' 03*3' 8 9' !4' -/67&45' A!.2' A2/6' 32*' A&3' 030&;;5' A/(32!77*1 4*3!-;*3' ' (**D' &(-2!.*-.' .2*' <0!;1*(' /,' .2*' , : ' & 11!03' 2*' 7(!4-!7&;' 1(5' 6*&30(*' /,' .2*' /6&43' *: &;' ./' 4*&(;5' .A/' >&;;/43' &' 3!0.2' 7&(.' /,' .2*' (**D' 6*1!6403' .' A&3' 1!=!1*1' !4./' $?' - ' @' (" ' ?C' < ' $@R' ' $T@' : (; /*(&' 8 (' ' 2*' (**D' >/1F 1*33*3' /,' &.*' /6*(' !4' /4*' 7&33&>*' W'' ' OKK=' @NTg' 7*&D3' >*4*(&;;5' /,' .2*' ' .2&.' 37!43' .2*' .2(*B' /,' ;!,*' ,XB 6*4&.' .2*!(

8../6&4'(*;!*,'!4 -2;/33'$#*>*;' (*B1*4-*' /,' .2*' 06</;1.3' 4*&(' *(;!4 9 q' ' ' ' ;! ;

<!(.2" !4' &4/.2*(' W (' CTg' /,' 3*=*(&;' ' &41' *;3*A2*(*' W ' =!!' $TUg' /,' .2*' $ $ (' /(' 7!44*(3' 2*!(' (*;&.!/4' ./' L*03' /4*' /.2*(' >/13' !3' 4/' 6/(*' -;*&(;5' 1*,!4*1' <" /6*(' .2&4' <5' .2*' /.2*(' (**D3' .' /6' .!6*' &.*' !3' &' 7/A*(' A!.2' 04;!6!.*1' 3A&" /=*(' 6*4' &41' >/13' &41' .2*' A!;;' /,' &.*' !' 3*&(-2*1' /0.' &41' *0*-0.*1' <5' L*03' A!.g' .2*' /.2*(' >/13' Wdd' O!0' RU" ' 00!!' C$ g' &.' &4/.2*(' L*03' !3' -&;;*1' .2*' 2!>2*3.'(0;*' /,' 1*3.!4!*3' /(' &>&!4' 2*' &41' .2*' /.2*(' >/1' -&4' -2&4>*' .2*' -/0(3*' /,' ,&.*' Wdd' O=!' C C' &41' *=*4' 6*4' -&4' *0-**1' .2*' ;!6!.3' !.' !6' 7/3*3' W'' ']]' ?g' 4' *3!/1' .2*5' &(' -&;;*1' !4' S4*' 7&33&>*' W+(1' @$$"Ug' 1&0>2' .*(' /,' !>2.' &41' 3!3.*(3' /,' .2*' ><11*33*' /,' 1*&.2' & ' A2!;*' !4' &4/.2*(' &+(g' TNCg' .2*5' &(*' .2*' 1&0>2.*(3' /,' L*03' &48

2>6 ;3 &41 3!3.*(3 /, .2 /(3* A2/ >!=* >//1 &41 <&1 ,/(.04*3 ./ 6/(.&;3 &. .2*!(<!(.2 .2*!(4&6*3 &($ (8.2 7!44*(9 A2/ 37!43 .2 .2(*&1 /, ;!,* ; L L P !37/3*(/, /.39 A2/ 1*.*(6!4*3 !.3 ;*4>.2 &41 8 4*=!.&<;*9 A2/ -0.3 !., 3 *0*(.!4> 7/A*(&. .2 .!6*nn/, <!(.2 .2*5 &(* -/44*-.*1 A!.2 ;!.25!& .2 >/11*33 /, <!(.2 A2/ A&3 3077/3*1 ./ 3.&41 <*3!1* .2*6 &41 A&3 !4=B*1 ./F >*.2*(A!.2" .2*6 .2*3* &41 .2 <*!4> .2 7/A*(3 .2&. 1*-!1*1 A2*4 ;!,* 32/0;1 *41 3 &. <!(.2 .2*5 1*.*(6!4* 6*4 3 1*3.!4!*3 !4 ;!,* .2*5 &(* &;3/ &<;* ./ 7(*1!-. .2*6 d 2!;* /4 .2 /4* 2&41 .2*5 &(* (*>&(1*1 &3 .2 !67&(.!&; (*7(*3*4.!&" .!=*3 /, .2 >/=*(46*4./, .2 A/(;1 .2*5 &(* /4 .2 /.2*(2&41 3/6*.!6*3 -/4-*!=*1 &3 -(0*; &41 K*&;/03 <*-&03 .2*5 (*6/(3*F ;*33;5 .2A&(. .2 7;&43 &41 1*3!(*3 /, 6*4 4 &(. .2*5 &77*&(&3 6&!1*43 /, >(&=* &37*-. $ (!3 030&;;5 (*7(*3*4.*1 A!.2 &(37!41;** ; (A!.2 &3 3-(/;; /(&>;/<* &41 A!.2 &7&!(/, 3-&;*3 /(32*&(3 /(*;3* 1(&A!4> &;/.8&3 !4 .2 -0.9 2 /6&43 !1*4.!,!*1 82 A!.2 .2*!(4&.!=* >/11*33*3 /, ,&.* .2 , 2*3 A*(&;3/ -&;*1 A &41 A*(!4=/D*1 &. ,2 *41 /, .2 ,!(3. A**D /, &4 !4,&4. 3 ;!,* 3 A " .2 >/11*33*3 .2&. A(/. C/A4 6*43 1*3.!45 !4 ;!,*

/3(!3 # ^4/A4 &3 (2 (**D >(&66&(!&4 /, .2 @41 -*4.0(5 &,.*(2(!3. *A&3 .2 &0.2/(/, &4 ; - " &;!3. !4 &;72&<*.!-&; /(1*(/, &40 6<*(/, *07(*33!/43 &41 ,/(63 03*1 <5 ..!-A(!.*(3 A!.2 .2 7&(&;;*; *07(*33!/43 03*1 !4 2!3 /A4 .!6*

1;;14!13* 0(5,03 &41 . &.03 .2 3/43 /, -./(8A2*4-* .2*5 A*(* &;3/ -&;;*1 /(*;3* /, 13*!1/4 &41 1;!<4* f /6*(' ' ' 0! UVN -&;;3 .2*6 <5 .2 10&; &41 1/0<;* 4&6* " [3 </53 .2*5 ,/0>2. &>&!43. ^*3./(&41 .2 6*4 /, 5;03 2*4 .2*5 2&1 >(/A4 07 .2*5 <*&. .2 &(65 /, *(,.-;*3 .2&. .2(*&.*4*1 .2*!(04-;* 0>*&3 <0. A*(* D!;;*1 <5 .2 ,/(6*(4*&(;*/43* !4 (>/;!3 4 /6*(.2*!(3/43 2&;7!03 &41 4.!6,.-203 &(* .2 -2!*,.&!43 /, .2 7*!&43 <*,/(* (/5 ;&.*(;*>*41 1*3-(!<*3 .2*6 &3 2&=!4> /4;5 /4* </15 f .2*4603 !! 7 VRg

/643 4 (**D 65.2/;/>5 .2 *=!; 37!(!. /, <;&6* &41 6/-D*(5 &-/(1!4> ./ *3!/1 W+(1 @$Cg .2 3/4 /, !>2. f -F -/(1!4> ./ 0-!&4 " @N 2 ,/041 ,&0;. A!.2 .2 6&4 ,/(6*1 <5 *7<3*3.03 ,/(4/. 2&=!4> ;!..;* 1//(3 !4 2!3 <(*&3. 3/ &3 ./ &;;/A /, 2!3 3*-(*. .2/0>2.3 <*!4>3**4 4 2!;/3.(&.03 &9 @$ _ U9 .2 /4;5 ,&0;.3 2 ,!413 !4 72(1!.* &(* .2&. 32 !3 .//.&;D&.!= &41 .2&. 2*(3&41&; 6&D*3 .//60-2 4/!3* g

V4*.& 0 /8*41 /, &(.!-;*9

/4*5"72&4>*(3 ? ?

14/7. (13 4 *7!.2*. 1*3-(!7.!=* /, &(/041 .*67;* !.2 !.3 -/;0643 &((&4>*1 !4 &-!(-;* &41 3077/(.!4> &-07/;& & 8*41 /, &(.!-;*9

/4.23 5

/4 /11*33 /, 6/4> .2 (**D3 $ &6/4> .2 /6&43

/7303 2 4&6* /, .A/ (**D 3**(3 8 4* /, .2 ; 7;.23* /, 8 -2J;;&!4 2*3F 3&;5 3/4 /, 6750 &41 .2 5672 2;/(!3 .//D 7&(. !4 .2 &;51/4!&4 04. &41 !4 .2 ,!>2./, .2 &7!.23 &41 .2 *4.&0(3 ! ! 39 &41 &,.*(A&(13 &--/6F 7&4!*1 .2 (>/4&0.3 &3 3**(&41 1!*1 /, .2 <!.* /, &34&D 4 !<5& A2*(* 2 A&3 /(32!77*1 &3 &! 2*(/ &41 2&1 &4 /(&-;* 8!9 /4 /, .2 (*.&4 3**(2 -!03 &41 /, &4./& &41 ,/041*(A!.2 672!; -203 3/4 /, 672!&(&43 /, .2 -*;*<(&.*1 /(&-;* & &. &;;.3 !4 !;!-!& /7303 &41 672!;/-203 D!;;*1 *&-2 /.2*(!4 &/6<&. ,/(.2 7/33*33!/4 /, .2 3&4-.0&(5

?(& 4* /, .2 3,0 7(!4-!7&;1!=!3!/43 /, .2 &(65 &. 7&(.& A2!-2 !4-;01*1 &;; 7&(.&43 &41 *(K/*-! .2&. A*(* /<;!>*1 ./ 3*(=* A&3 41*(.2 -/66&41 /, &7/;*6&(-2 &41 -/43!3.*1 /, ,/0('S (*!>2. " ! &41 3!0.**4 " A2!-2 A*(* 041*(&3 6&45 (1 " &41 " " (2*3* 1!=!3!/43 A*(* 4*=*(3*4. /4 & -&67&!>4 !4 .2*!(,0;; .(*4>.2 <;!. /4;5 .2 6*4 /, 7&(.!-0;&(5*&(3 37*-!,!*1 !4 *&-2 -&3* 2 7/;*" 6&(-2 &;A&53 .//D .2 -/66&41 /, .2 ,!(3. ·*=5

" /(72*0 2 (**D >/1 /, 1(*&63 & &

/(3;60 .(&>!-7/*.& (

f /3&!-3 2 .*(6 !3 030&;;5 1*(!=*1 ,/6 &7/3."-;&33!-&;A/(1 8 ("\ /--0((!4> !4 7&(.!&403 ; , "" " &41 0>03.!4* 5 $ 5 0=! (1 " . !3 .2 &(./, &((&4>!4>36&;; -0<*3 /(/, 6&(<;* -/;/0(*1 3./4* .*((&-/..&>;&33 /(3/6* /.2*(&(.!,!-!&; 30<3.&4-* 3/ &3 ./ 7(/F 10-* &4 /(4&6*4.&; 7&..*(4 /(/ 7!-.0(* &41 ./ 7(/=!1* &10(&<;* ,/(6 /, 1*-/(&.!/4 ,/(A&;;3 &41 7&=*6*4.3 2* /4;5 6/3&!-2!.2*(./, /041 !4 (**-* (/7*(!3 .2&. 1!3"

covered in 1829, in the floor of the east portico of the temple of Zeus, at Olympia, possibly little later than the first half of the 4th century B.C. It is formed of rough round pebbles of various colours from the bed of the Alphēus, and it represents Tritons of graceful design surrounded by a tasteful border of palmettes and meandering lines (*see* Baumeister's *Denkmäler*, fig. 998).

The earliest mosaics mentioned in literature are those made for the ship of Hĭĕrōn II, about the middle of the 3rd century, with scenes from the *Iliad*, which took 300 skilled workmen a whole year to execute (Athenæus, 206 D). To the same age belongs the only artist in mosaic whose name is recorded in literature, Sōsus of Pergămŏn, famous as the inventor of a kind of mosaic called the *ăsārōtŏn* (the "unswept" floor), in which the floor of a room is inlaid with representations of fruits, fishes, and fragments of food that have fallen from the table (Pliny, xxxvi 184; *cp.* Statius, *Silvæ* i 3, 36). Mosaics of this type have been found not only at Pompeii, but also at Aquĭlēĭa and in Algiers. According to Pliny, the original design by Sosus included a remarkable representation of a dove drinking and casting the shadow of its head on the water beneath, while several other doves were to be seen sunning themselves on the rim of the bowl. The best known copy of this is that called *The Capitoline Doves* (fig. 1), found at Hadrian's Villa near Tivoli. It is entirely composed of cubes of marble, without any admixture of coloured glass.

The art of reproducing paintings in mosaic probably originated in Egypt, and thence found its way to Italy. The largest mosaic picture of Roman workmanship is that executed for the Temple of Fortune at Præneste, restored by Sulla (Pliny, xxxvi 189). This was discovered in 1640, and is generally supposed to represent a popular *fête* on the occasion of an inundation of the Nile. It probably belongs to the time of Hadrian.

(1) * THE CAPITOLINE DOVES.
(Rome, Capitoline Museum.)

Among the mosaics of Pompeii the most famous is that identified as the *Battle of Issus*, possibly a copy of the painting of the same subject by a female artist, Hĕlĕnă, "daughter of Timon the Egyptian," which was placed in the temple of Peace in the time of Vespasian (Photius, *Bibl.*, p. 482). It represents the critical moment when Alexander is charging, bare-headed, in the thick of the fray, and has just transfixed with his lance one of the leaders of the Persians; while Dārīus, with his lofty tiara and red chlămŷs, is extending his right hand in an attitude of alarm and despair (figs. 2

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(2) * BATTLE OF ISSUS.
(Mosaic from the *Casa del Fauno*, Pompeii; Naples Museum.)

(3) * DARIUS IN THE BATTLE OF ISSUS
(Detail of fig. 2.)

&41 9 4 .2* 6/3&!- !.3*; .2* ;/A*(</(1*((*7(*3*4.3 & (!=*(&77&(*4.;5 .2* !;* A!.2 & -(/-/1!;* 2!77/7/.&603 !-2F 4*06/4 !<!3 *.- .203 -/4,!(6!4> .2* -/4F K*-.0(* &3 ./ .2* >57.!&4 /(!>!4 /, .2* 1*3!>4

/3&!-3 <*&(!4> .2* &(.!3.3 4&6* &(* 3*;1/6,/041 2*.A/ ,!4*3./, .2!3-;&33 &(*.2/3*,(/6 /67*!! !43-(!<*1A!.2 .2* 4&6* /, ;/3-<(;1*3 /, 6"3 4* /, .2*3* (*7(*3*4.3,/0(6&3D*1 ,!>0(*3 7;&5F !4> /4 =&(!/03 !43.(06*4.3 2*A/(D !3 -/67/3*1 /, =*(536&;; 7!*-*3 /, >;&33 /, .2* 6/3. <*&0.!,0; -/;/0(3 &41 !4 =&(!/03 32&1*3 8-0. !4 5*(3 , 7 @U?9 4/.2*(/, 3!6!;&(-/43.(0-.!/4 7/(.(&53 &(*2*&(3&, ,/(& 3&.5(!- 1(&6& 2*>(/041 !3<;&-D .2* 1(&7*(5 6&!4;5A2!.* <0. .2* (/<* /, .2* ,;0.*"7;&5*(!3 </(1*(*1 A!.2 70(7;* .2* ;!73 &(* & <(!>2. (*1 &41 .2* ,;0.*3 &41 /(4&6*4.3 -/;/0(*1 ;!D< >/;1 # & ,!> @ 2* ,!4*3. 6/3&!- /, .2* *&(;5 7&(. /, .2* !41 -*4.0(5 !3 .2* 2!>2;5 7!-./(!&; -*4.&0("6/3&!- 4/A &. *(;!4 ,/041 &. .2* !;& /, &1(!4 # &06*!3.*(3 5 " < ,!> TC$9 2* 6/3. -*;*<(&.*1 A/(D3 /, & ;&.*(1&.* !4F -;01* .2&. !4 .2* + /, &(&-&;& A!.2 406*(/03 >;&1!&./(!&; ,!>0(*3 /, -/;/33&; 3!0* &41 04>(&-*,0; 1(&A!4> # 9 8 $UC9 &41 .2&. /, .2* /6&4 =!;;& &. *44!> 4*&((*=*3 2* 1!6*43!/43 /, .2* ;&..*(&(* VN ,**. <5 &41 .2* 1*3!>4 !4-;01*3 3*=*(&; >(/073 /, ,!>0(*3 !4-;/3*1 !4 & 3:0&(* /(2*0&>/4&; ,(&6*A/(D /, .*33* ;&.*1 6&(<;* # ,!>3 NN"@ C 9 6/4> .2* 6/3&!-3 !4 .2* (!.!32 03*06 &(* &4 672!.(!.* &41 (!./43 A!.2 !/45303 *;*&>*(&41 .&;&4.& &; ,(/6 &;!-&(F 4&3303 &41 /, /6&4 .!6*3 3!4-* ,!>0(*3 /, !1/ &41 4*&3 A*(* ,/041 !4 .2* 3&6* =!;;& 8 *A./4 3 + 5 !! U?9 3 6/3&!-3 3.!;; " !4 4>;&41 6&5 <* 6*4.!/4*1 .2/3* &. //1-2*3.*(!>4/(&41 (&1!4> ! 4 .2* H &;;*(5/, .2* (-2!.*-.0(&; /0(.I /, .2* /0.2 ^*4F 3!4>./4 03*06 &(* *02!<!.*1 $NN-/;/0(*1 7;&.*3 A!.2 -/7!*3 /, 6/3&!-3 -/;;*-.*1 <5 (/;;&3./4 !4-;01!4> & (**D 6/3&!- /, 1 " ,/041 !4 .2* (!6*& &41 .2* &</=*"6*4.!/4*1 6/3&!- /, (3*4*3.* 84/ $?U9 /3&!-7&=*6*4.3 &(* D4/A <5 1!,,*(*4. 4&6*3 1*3-(!7.!=* /, -*(.&!4 =&(!*.!*3 /, 3.(0-.0(* 8$9 " !3 -/67/3*1 /, .2!4 7;&.*3 /, -/;/0(*1 6&(<;* /, =&(!/03 3!Q*3 -0. # !4./ 3;!-*3 /, . $ 6'8 3! 7 " " 2 (, 2 " " . ?

(*>0;&(,/(6 &41 &((&4>*1 !4 &4 /(4&6*4.&; >*/6*.(!-&; 7&..*(4 !4-;01!4> .(!&4>;*3 2*0&>/43 *.- 8 !.(0=!03 =!! $ C 0*F ./4!03 $ C? &. *419 8@9 2* *7!.2*. 1*3-(!<*3 & 7&=*6*4. /, .2* 3&6* >*4*(&; D!41 <0. 6&1* 07 /, (*>0;&(3:0&(* 1!*3 # e ,/(6!4> (*-.&4>0;&(1*3!>43 8*<9 8 9 = 2 !3 &77;!*1 ./ & 1*3!>4,/(6*1/, 36&;; 7!*-*3/, 6&(<;* !4 =&(!/03 -/;/0(3 &((&4>*1 3/ &3 ./ !6!.&* .2* /<K*-. (*7(*F 3*4.*1 A!.2 & 2!>2 1*>(* /, 7!-./(!&; *,,*-. 2* 1!*3 &(* /, 1!,,*(*4. 32&7*3 3/ &3 ./&;;/A /, .2*!(,/;;/A!4> .2* A&=5 -/4./0(3/, .2* /0.;!4* /, .2* /<K*-. 2* 4&6* !3 1*(!=*1,(/6 .2*,&-. .2&. .2*>*4*F (&;*,*-. /, 30-2 &4 &((&4>*6*4.(*3*6<;*3 .2* -/4./(.!/43 /, & -;03.*(/, A/(63 # #$;!45 OOO= @ '" 1 * &41 0-!;!03 :0/.*1 !4 !-*(/3 $CT T - " Z 8C9 2*.*(6 (G2 8 &((/ 7 7 !!! @ C $ $N ;!45 OOO=! $RT9 A&3 7(/<&<;5 &77;!*1 ./ & 7&=*6*4. 6&1* /, 36&;; 7!*-*3 /, 3./4* /(6&(<;* /, 4&.0(&; -/;/0(3 &41 1!3.!4F >0!32*1 ,(/6 .2/3* /, -/;/0(*1 >;&33+ /(3/6* /.2*(&(.!,!-!&; -/67/3!./4 /3&!-3 /, >;&33 A*(* 03*1 ./ 1*-/(&.* -*!;!4>3 8 ;!45 $ 2* >!;. 03*1 !4 2(!3.!&4 6/3&!-3,/(.2*<&-D>(/041/, .2* 7!-.0(*3 A*(* ,/(6*1 <5 &77;5!4> ./ & -0<* /, *&(.2*4A&(* .A/ .2!4 7;&.*3/, >;&33 A!.2 &,!;6 /, >/;1";*&, <*.A**4 .2*6 &41 =!.(!F ,5!4> .2* A2/;*!4 & ,0(4&-* .A&3 .2!3 1!3-/=*(5 .2&. ;*1 ./ .2* *0.*43!=* &77;!-&F .!/4 /, 6/3&!- /(.2*1*-/(&.!/4/, .2* A&;;3 &41 6/(* 7&(.!-0;&(;5 .2* &73*3/, 2(!3.!&4 -20(-2*3 . /6* A*2&=* 6/3&!-3 /, .2* C.2 -*4.0(5 !4 .2* -20(-2*3/, /43.&4.!& &41 &(!& &>>!/(* . &=*44& .2/3* /, .2* ;/A*(7&(. /, .2* (.2/1/0 &7.!3.*(5 <*;/4 ./C N .2/3* !4 .2* &03/;*06 /, &;;& ;&-!1!& ./CCN .2/3* !4 .2* 1/6*3 /, .2* (.2/1/0 &41 (!&4 &7.!3.*(!*3 ./ &</0. ?V .2/3* /, &4 !.&;* ./VCU /, 7/;;!4&(* 0/=/ ./VCT &41 /, .2* &(-2!*7!3-/7&; 7&;&-* ./ &</0. .2* 3&6* 1&.* &41 ;&3.;5 .2/3* /, 7/;;!4&(* !!! ;&33* ./ &</0. ?U$"?UU . !;&4 .2* 6/3&!-3/, /(*4Q/ &41 6</(>!/ <*F ;/4>./ .2* V.2 -*4.0(5 .2/3*/, &(*4Q/ !4 3.(!& ./ .2* " .2 .2/3* /, /72!&. /43.&4.!4/7;* A*(* *0*-0.*1 !4 .2* .!6* /, 03.!4!&4 8V@U"V?V9 . /6* .2/3*/, /36&3 &41 &6!&4 &(* &3-(!<*1 ./

V@?"V N" /,' ' /(*4Q/' 0.3!1*' .2*' &;;3' ./' VUU"VTN" /,' ' >4*3*' ./' ?@V"? R" /,' .2*' /(&./(5' /,' ' *4&4.!03'.2*' -20(-2*3' /,' ' (&0*1*3' ' *-!;!&'!4' (&3.*=*(*'&41' ' &(!&' &=!-*;;&'./'.2*'U.2'-*4.0(5' ,.*(' .2*'T.2'-*4.0(5'.2*'&(./,'A/(D!4>'!4'6/3&!-' X*&3*1',/(' &A2!;*'!4' /6*"&41'!4' .&;5'!4' B*4*(&;B' ./' <*' (*=!=*1' &.' &' ;&.*(' 1&.*' !4' .2*' -20(-2' /,' ' 57(!&4' &.' 0(&4/'8$$NT9' &41' .2*' <&3!;!-&' /,' . ' &(D3' &.' *4!-*' 8!4' &41' &,.*(' .2*' ▯▯.2' -*4.0(59' &41' &,.*(F A&(13' &.' /6*'!.3*;,' 4' !-!;5'.2*'6/3&!-3' /,' .2*'$ ' , " '!4'.2*'(/5&;'7&;&-*' &.' &;*(6/' A*(*' ,!4!32*1' !4' $$C ' A2!;*' .2/3*' /,' .2*' -&.2*1(&;' &.' /4(*&;*' A*(*' 2*>04'!4'$$U@

(' &(:0&(1.'L &3 4/,;.,*2*4' 2 ' , " ' ?@V"? @' ^!64*(3' + (" R 1 '!!!' R@ " C " /4' /21*4'/4' ' !4' &06*!3.*(3'5 " ' ' *(37&-2';' [' f ' g /3-203' ' (**D' <0-/;!-' 7/*.' A2/' ;!=*1' !4' 5(&-03*' &</0.' ' $VN' /0(' ;/4>*(' &41',/0(' 32/(.*(' 7/*63' 2&=*' <**4' 2&41*1'1/A4'&3' 2!3'" .2*5'32/A'.2*'>(*&.*3.' "*;*>&4-*' /,' *07(*33!/4' A!.2/0.' .2*' .(0.2' ' 4&.0(*' &41' .2*' 1(&6&.!-' 7/A*(' /,' 2!3' 6/1*;' 2*/-(!.03

1.2,!->3' ' /

0-!43' -3 =1;&'&T " ' A&3' </6' /,' &' ,&6!;5'!4' A2!-2' .2*' 7/4.!,!-&.*' &41' >(*&.' ;*>&;' ;*&(4!4>' 2&1' <**4' 2&41*1'1/A4',(/6' ,&.2*(' ./' 3/4' *' A&3' &' ,(!*41' /,' .2*' "/(&./(' (&3303' &41' 2!3' -/;;*&>0*' !4' &;6/3.' &;;' /,,!-*3' A&3' 6&1*' -/430;' !4' (' TV' &41' 60(1*(*1' <5' .2*' &(!&43' !4' RV" ' 6&4' /,' >(*&.' !4.*>(!.5' &41' A!1*' -0;.0(*' 2*' %-/6<!4*1' &' 7(/,/041' D4/A;*1>*' /,' .2*' ;&A' A!.2'(*6&(D&<;*' *;/:0*4-*' ' *' (*4" 1*(*1' >(*&.' 3*(=!-*' <5' <*!4>'.2*',!(3.'./'(*F 10-*' .2*' ;*>&;' 6&.*(!&;3' &--060;&.*1'!4'.2*' "-/0(3*' /,' .!6*' ./' &' -/43!3.*4.' &41' -;&33!F ,!*1' 353.*6' 2!3' 2*' 1!1'!4'2!3';/3.'A/!!' .5' .2M' $ Q' !4' *!>2.**4' =/;06*3" !.' ,/(6*1' .2*' <&3!3',/(' &' 6*.2/1!-&;' .(*&.F 6*4./,';&A' 6/4>'2!3'707!;3'A*(*' !-*(/' &41'.2*';&A5*(' 0;7!/;03' 0,03' &

0;-;<*(' 7!.2*./,' 0;-&4'&1)

0; 03' ' " ( )

0;.&' fA(/4>;5' 37*;.' [' 2*' /6&4'.*(6',/(' &',!4*'!4,;!-.*1' *!.2*(' <5' &' 6&>!3.(&.*',/(' 1!3/<*1!*4-*'/(' !430</(1!4&F ./!4'/(' &.'.2*' 6/./!4'/,'&4',,!-!&;' <5'.2*'1*F -!3!/4'/,'.2*'7*/7;*'&.'.2*' ' /(' 7(*3-(!<*1'!4' ;&A3'A!;;3'*.-' !4' -&3*' &45'/4*' -/4.(&=*4*1'.2*6' ./(!>!4&;;5' -/43!3.*1'!4'-&..;*' 32**7' /(' /0*4" .2*4' &,.*(' ' C N'.2*' ; -' ' , ' 7*("' !6!..*1'.2*'7&56*4.'!4' 6/4*5'&--/(1!4>'./ &',!0*1'3-&;*' 8&' 32**75▯ ' ' &4'/05▯ ' ' 2*';/A*3.'&6/04.'/,'.2*' '!4F ,;!-.*1'<5'&'6&>!3.(&.*'!4'=!(.0*'/,'2!3'/,,!-*' A&3'&'32**7" A2*4'&-.3'/,'1!3/<*1!*4-*'A*(*' (*7*&.*1'.2*',!4*-/0;1'<*'(&!3*1'./' N'/0*4' & ! ' ' >&!43.'2*&=!*('7*4&;.!*3' '!4'7&(.!-0;A'&3'A*(*'!67/3*1'<5'.2*' .(!<04*3'/,'.2*'7*/7;*'/4'&--/04.'/,'7/;!.!-&;' -(!6*3' 1'A2*4'&'>*4*(&;'2&1'A&>*1'A&(' 043D!;,0;;5'/(' 2&1' *0-**1*1'.2*' ;!6!.3' /,' 2!3'7/A*(' &4'&77*&;'./'.2*' ' A&3'>(&4.*1'&41'.2*5'A*(*'1*-!1*1'<5'.2&.' </15'!4'.2*'(*>0;&(' ;*>&;' 6&44*(' 2*' ,!4*3'!67/3*1'<5'.2*'7*/7;*'A*(*'&;A&53' &41'.2/3*'!67/3*1'<5'.2*'6&>!3.(&.*3'030F &;;5'3*.'&7&(.',/(' 3&-(*1'70(7/3*3' /.2*(F A!3*'.2*5',*;-' ./'.2*' '&3' A&3'.2*' (0;*'041*(' .2*' 67!(*' 2!3'&;3/'(*-*!=*1' &'7&(.'/,'.2*'7*4&;.!*3',!0*1'<5';&A3'.2*' /.2*(' A&3'>!=*4'.'.2*'7;&!4.!,,' !4*3',/(' -/4.(&=*4.!/4'/,'.2*'-;&03*3'/,'&'A!;'A*(*' *!.2*(' 7&!1'./' .2*' ,041 3'/,'&' .*67;*'/(' ./' .2*'-/6604!.5'./' A2!-2'.2*' .*3.&./(' <*;/4>*1'&41'&.' /6*'./' .2*' ' 066!03' ' &.!4'A(!.*(' /,' " ' & ' '&,.*(' bD' '(,!4!-!7!06' (!>!4&;;5'.2*' /6&4'.*(6' ,/(' &'./A4'.2*'!42&<!.&4.3'/,'A2!-2'-&;;*1' " '/4;5'7/33*33*1'7&(.'/,'.2*'(!>2.3' /,' /6&4'-!.!Q*432!7' Q'.2*'7(!=&.*'(!>2.3' /,' D '&41' " 'A2!;*'.2*5' A*(*'*0-;01*1',(/6'.2*'7/;!.!-&;' (!>2.3' .2*' ' 1'&41'.2*' '(" '.2*' (!>2.' ./' *;*-.'&41'./'<*'*;*-.*1'./'/,,!-*' 3' /6&4'-!.!Q*43'.2*5'1!1'4/.'3*(=*' 8;!D*'.2*' &;;!*39'!4'-/2/(.3'041*(' &'7(*,*-.' <0.'!4'.2*';*>!/43'041*(.(!<04*3"'.2*5'A*(*' 2/A*=*(' &33!>4*1'./' ;*>!/43'1!3.!4-.',(/6' .2*'/.2*(3'3!4-*'.2*5'A*(*'4/.'!43-(!<*1'/4' .2*';!3.3'/,'.2*' /6&4'.(!<*3'&41'.2*(*,/(*' -/0;1'4/.'<*' ;*=!*1'!4' &--/(1&4-*'A!.2' .2/3*' ;!3.3' ,.*(' .2*' 1!33/;0./!4'/,'.2*' &.!4' *&>0*' !4' ' R'.2*'&;;!*1'./A43' A*(*'70.'!4./'.2*'7/3!./!4'/,' " .',!(3.'.2*(*'A*(*'.A/'-;&33*3'/,' " 2 '&--/(1!4>'&3'.2*5'(*.&!4*1'&4'!41*F 7*41*4.'-/6604&;'-/43.!.0./!4'/('4/.' 2* 3*-/41'-;&33'A2!-2'2&1'4/'3*4&.*'6&>!3F .(&.*3'/('7/70;&(' &33*6<;5'/,'!.3'/A4'&41' A&3'>/=*(4*1'1!(*-.;5'<5' /6*'-/43!3.*1' /,'('& '3'.2*' " ' >(&10&;;5'/<.&!4*1'.2*',0;;'(!>2.3'/,'-!.!Q*4F 32!7' .2*!('4&.0(*' -2&4>*1" &;;' 7*(3/43' A*(*' 4/A' -&;;*1' " ' A2/'1!1'4/.' <*;/4>'./'.2*'./A4'/,' /6*'<5'<!(.2'<0.' A*(*',0;' /6&4'-!.!Q*43'&41'2*4-*' <*F ;/4>*1'./'&' /6&4'.(!<*'A*(*'(*>!3.*(*1'&.' /6*'-/0;1'*;*-.'*1'./',,!-*' &41'3*(=*1'!4'.2*' /6&4';*>!/43

2*' ; -' ' /,' ' TN' 6&1*' &;;' .2*' ./A43' /,' .&;5' " ' A!.2' ,0;;' -!=!-' (!>2.3 '&41' *=*!5' .&;!&4' -/04.(5"./A4' A&3' 4/A' -&;;*1'&' /6&4' " ' (&10F &;;5' .2*' ./A43' !4' .2*' 7(/=!4-*3' (*-*!=*1' '6 04!-!7&;' (!>2.3 ' .!;;' ,!4&;;5' &(&-&;;&' 6&1*' &;' ./A43' /,' .2*' *67!(*' " ' (!F >!4&;;5' /4*' -;&33' /,' " '2&1' (*.&!4*1' .2*!(' /A4' ;&A3' &41' .2*!(' /A4' -/43.!.0.!/4' .2!3' &((&4>*6*4.' 041*(A*4.'&' -2&4>*' A2*4' .2*5' A*(*' (*-*!=*1' !4./' .2*' /6&4' -!.!Q*4F 32!7' !4&360-2' &3' .2*' /6&4' ;&A' .2*4' <*-&6*' <!41!4>' 07/4' .2*6' &41'&' (*>0;&(;5' %/(>&4!Q*1' &16!4!3.(&.!/4' /4' .2*' /6&4' 6/1*;' A&3' !4.(/10-*1' 2*' -!.!Q*43' A*(*' 1!=!1*1' !4./' &41' &.' .2*!(' -..4&./' 7&33*1' &;;' D!413' /,' 1*-(**3' &41' -2/3*' /,,!-*(3" 6/3.' /,' .2*3*' (!>2.3' 2/AF *=*(' 7&33*1' !4./' .2*' 2&413' /,' .2*' ;/-&;' 3*4&.*' ./A&(13' .2*' *41' /,' .2*' 3.' -*4.0(5' 2!3' 3*4&.*' 030&;;5' -/43!3.*1' /,' $NN' ;!,*" 6*6<*(3' -&;;*1' " ' &41' !4' *=*(5' ,!,.2'5*&(' .2*' =&-&4-!*3' A*(*' ,!;;*1'07' ,(/6' .2/3*' A2/' 2&1'2*;1' /,,!-*' /(' A*(*' :0&;!,!*1' <5' .2*!(' 7(/7*(.5' 2*' 2!>2*3.' /,,!-!&;3' A*(*' .2*' ' A2/' A*(*' K01>*3' &41' 7(*3!1*1' &.' .2*' &33*6<;!*3' /,' .2*' 7*/7;*' *37*-!&;;5' &.' *;*-.!/43' &41' !4' .2*' 3*4&.*" .2*' .A/' " "" ' -2/3*4' ,/(' &' 5*&(' /4-*' !4' ,!=*' 5*&(3' &41' -/((*37/41!4>' ./' .2*' /6&4' -*43/(3" &41' ' &41' $ ' /,,!-!&;3' A!.2' 3!6!;&(' 10.!*3' ./' .2*' /6&4' /,,!-!&;3' ,' .2*' 3&6*' 4&6*' & ' 0) ' *3!1*3' .2*' " ' A2/3*' 7/3!.!/4' <*-&6*' 2*(*1!.&(5' &.' .2*' *41' /,' .2*' 67!(*' .2*(*' A*(*' 041*(' .2*' 2*&.2*4' *67*(/(3'&' 3*-/41' 7(!=!;*>*1' -;&33' D4/A4' &3' 1 ' -2/3*4' <5' 1*-(**' /,' .2*' ;/-&;' 3*4&.*' &41' 4*0.'./' .2&.' </15' !4' (&4D' 2*5' 6&1*' 07' & 1 ' A2!-2' A&3' /(!>!4&;;5' 1*1!-&.*1' ./' .2*' A/(32!7' /,' .2*' 0;!&4' ,&6!;5' &41' !4' ;&.*(' .!6*3' 3**63' ./' 2&=*' &;3/' *0.*41*1' !.3',04-.!/43' ./' .2*' A/(32!7' /,' .2*' /.2*(' *67*(/(3' 2*' 1*F -;!4*' /,' .2*' 604!-!7&;' 353.*6' .2*' 7(/3F 7*(!.5'/,' A2!-2' 2&1'1*7*41*1' /4'.2*';!<*(.5' &41' !41*7*41*4-*' /,' .2*' &16!4!3.(&.!/4' 3*.' !4' &.' .2*' *41' /,' .2*' !41' -*4.0(5' &,.*(' 2(!3.' A2*4' .2*' *4;7*(/(3' <*>&4' ./' .(&43,*(' ./' .2*' " ' .2*' <0(1*43' /,' .2*' .&.*' &41' .2*' " ' >(&10&;;5' <*-&6*' 6*(*' !67*(!&;' /,,!-!&;3' A2/' *(*' 6/(*' *37*-!&;;5' (*37/43!<;*' ,/(' .2*' -/;;*-.!/4' /,' .2*' .(!<0.*' !67/3*1

0(&;' (/A4' ' "

0(-!&' ' 1)

0((!4&' & ' ' 4&6*' >!=*4' <5' .2*' /6&43' ./' =*33*;3' 6&1*' /,' &4' /(!*4.&;' 6!4*(&;' -&;;*1' # M $ A2!-2' /4;5'/--0((*1 !4' 36&;;' 7;&.*3' /7&:0*' /,' 10;;' ;03.(*' &41' -2&4>!4>' -/;/0(3' &41' =*(5' <(!..;*' 2*' ,!(3.'=*33*;3' /,' .2!3' D!41' A*(*' <(/0>2.' ./' /6*' <5' /67*5' !4' /' ?$' &6/4>' .2*' 37/!;3' /,' D!4>' !.2(!1&.*3' f ;!45' > ' OOO=!!' $Rg' 4' /6*'*4/(6/033'7(!-*3' A*(*' 7&!1' ,/(' .2*6' /!!' &--/04.' /,' .2*!(' 6&.*(!&;' A2!-2' !3' 04D4/A4' ./' 03' <0.' !3' 2*;1' <5' 6&45./' 2&=*' <**4' &' (&(*' D!41' ' fA2!;*' /.2*(3' !1*4.!,5' !.' A!.2' H: "%' 203' *(/' 7&!1',/(' 2!3' -07' A!.2' &' 2&41;*' 6&1*/,'6 (6.2*306'/,'&6!;;!/43*3.*(-*3' &</0.' E ' W ' ' g ' &3' A*;;' &3' *=*(5'=&(!*.5' /,' 7(*-!/03' 3./4*' A&3' !6 !F .&.*1'!4' >;&33

03K*03' 8$g' 65.2!-&;' 3!4>*(' 3**(' &41' 7(!*3.' A2/' /--0(3' *37*-!&;;5' !4' ..!-' ;*>*413' *' !3' 3&!1'./' 2&=*' ;!=*1' !4' 7(*" /6*(!-'.!6*3' &41' ./' 2&=*' <**4' .2*' 3/4' /,' ;*4*' &41' (72*03' /(' !403' /(' 06/;" 703' 06*(/03' /(&-0;&(' 3&5!4>3' 2566 43' &41' -2&4.3' /,' 1*1!-&.!/4' &41' 70(!,!-&.!/4' A*(*' &3-(!<*1' ./' 2!6' A2!-2' 2&1' <**4' -/;*-.*1' &41' &;3/' !4.*(7/;&.*1' <5' 4" 6 -(!.03' !4' .2*' .!6*' /,' .2*" !3!3.(&.;13*' !3' ./6<' A&3' 32/A4' &.' .2*43' /4' .2*' 03*06' !;;' 3/0.2"A*3.' /,' .2*' -(/7/;!3' f &03&4!&3' !' @V ` g

8@g' '>(&66&(!&4' &41' (**D' 7/*.' A2/' !4' .2*' <*>!44!4>' /,' .2*" ".2'-*4.0(5' &,.*(' 2(!3.' A(/.*' &32/(.' *7!-' /,' ;/=*' *4.!.;*1' ' " ' ; " ' A2!-2' 32/A3' !4.*43*' A&(6.2' /,',**;!4>' &41' 2&3' ./0-2*3' .2&.' &(*' &;6/3.' 6/1*6

03&>*.*3' ' ;*&1*(' /,' .2*' 03*3' .!.;*' /,' 8 7/;;/g' .2*'>/1' /,' 7/*.3' & '&41' 0)

03*!14' 8 &.' " ' (!>!4&;;5' &' .*67;*' /,' .2*' 03*3' .2*4' &' 7;&-*' 1*1!-&.*1' ./' .2*' A/(D3' /,' .2*' 03*3' 4' .2!3' 3*43*' .2*' 6/3.' (*6&(D&<;*' &41' 6/3.' !67/(.&4.' 603*06' /,' &4.!:0!.5' &3' .2&.' *3.&<;!32*1' &.' ;*0&41(!&' <5' ./;*65' 2;&1*;7203' !4' .2*',!(3.2&;;' /,' .2*' (1'-*4.0(5' ' 2!3' !43.!.0.!/1'-/4.(!<0.*1'=*(5';&(>*;5'./A&(13' .2*' 7(*3*(=&.!/4' &41' *0.*43!/4' /,' (**D' ;!.*(&.0(*' &41';*&(4!4>' .' A&3'&' 37&-!/03' &41' 6&>4!,!-*4.'*1!,!-*'3077;!*1'A!.2'*=*(5F .2!4>'(*:0!3!.*' ,/(' !.3' 70(7/3*'30-2' &3' &4' /<3*(=&./(5';7&;&-*' &41'-/6604!-&.*1'!66*1!&.*;5' A!.2'.2*'.*67;*'/,'.2*' 03*3' /.*1'6*4' /,' *(01!.!/4' A*(*' .2*(*' 3077/(.*1' &.' .2*' -/3.' /,' .2*' .&.*' ./' *4&<;*' .2*6' ./' 1*=/.' .2*63*;=*3' ./' .2*!(';*&(4*1' 3.01!*3' A!.2/0.' !4.*((07.!/4' 2*5' A*(*' 041*(' .2*'307*(F =!3!/4' /,' 7(!4-!7&;3' -2/3*4' ,(/6' .2*!(' /A4' </15' A2!;*' .2*' 7(!*3.' /,' .2*' 03*3' A&3' &.' .2*!(' 2*&1' 41*(' .2*' /6&4'*67*(/(3

A2*4 > (7. 2&1 <*-/6* & 7(/=!4-* /, .2* *67!(* !. 3.!;; -/4.!40*1 &3 &4 !67*(!&; !43.!.0.* &41 .2* -*4.(* /, &;; ;*&(4!4> *37*-!&;;5 !4 6&.2*6&.!-3 &41 &3.(/4/65 \f .(&</ 7 UTCg &(&-&;;& -/4,!3-&.*1 .2* 7*43!/43 /, .2* ;*&(4*1 6*4 &..&-2*1 ./ !. &41 .2* !43.!.0.!/4 !.3*;; A&3 -/67;*.*;5 1*3.(/5*1 10(!4> .2* -!=!; A&(3 041*(0(*;!&4 !4 .2* (1 -*4.0(5 03*3 4 (**D 65.2/;/>5 /(!>!4&;;5 .2* 56723 /, !437!(!4> 37(!4>3 .2*4 >/11*33*3 /, 3/4> !4 >*4*(&; &,.*(A&(13 .2* (*7(*F 3*4.&.!=*3 /, .2* =&(!/03 D!413 /, 7/*.(5 &(.3 &41 3-!*4-*3 4 /6*(A2/ 4/A 37*&D3 /, /4* &41 4 A /, 6&45 03*3 <0. 832* .2&. *0./;39 .2* 03* /, (:K A!.2 &3-(/;; 8 9) 832* .2&. >;&11*439 .2* 03* /, : " 1 8 =!(!.2 .2* 1/0<;* ,;0.* 8C9 832* .2&. ,;/0(!32*39 .2* 03* /, :' &41 <0-/;!-7/*.(5 A!.2 .2* -/6!- 6&3D .2* !=5 A(*&.2 &41 .2* 32*72*(13 3.&,, 8V9 0 5& 9 832* .2&. 3!4>39 .2* 03* /, 1 :* A!.2 .(&>!- 6&3D !=5 A(*&.2 &41 /--&3!/4&;;5 A!.2 &..(!<0.*3 /, !41!O410&; 2*(/*3 1 .2* -;0< .2* 3A/(1 8"9 A(J 9832* .2&. (*K/!-*3 !4 .2* 1&4-*9 .2* 03* /, " "1* A!.2 .2* ;5(* 8U9 5 8.2* ;/=*;5 /4*9 .2* 03* /, :* A!.2 & 36&;;*(;5(* 8 9 5 *& A /(

N ,. B] ^ ; E E^E

8 &(-//2&> 3!&.2* /O=(* &(!3W9

A!.2/0. 37*-!,5!4> .2*!(406<*(/(.2*!(4&6*3 .2*5 &(* -/43!1*(*1 &3 >/11*33*3 G1A*;;!4> !4 ;56703 A2/ &. .2* 6*&;3 /, .2* >/13 3!4> 3A**.;5 ./ .2*; 4* /, 7/;;/ !437!(* .2* 7/*. &41 7(/67. 2!3 3/ > *3!/1 W+ (!V@" U?" g-&;;3 .2*6 .2* 4!4* 1&0>2.*(3 /, L*03 &41 4Z6V354* </(4 !4 ;*(,& &41 6*4.!/43 .2*!(4&6*3 ./ A2!-2 A* 32&;; &. .2* 3&6* .!6* &11 .2* 7(/=!4-* %&41 .2* &..(!<0.*3 &,.*(A&(13 &33!>4*1 ./ *&-2 # -0.39 8$9 " A$ 9 832* /, .2* ,&!(=/!-*9 !4 *3!/1 .2* 4/<;*3. /, &;; .2* 03* /, " 1* &6/4> 2*(&..(!<0.*3 4(* & A&O .&<;*. &41 & 7*4-!; 8@9 " A5 $ * *& A 832* .2&. !3 (!-2 !4 256439 .2* 03* /, 3*(!/033/-(*., "1 * 030&;;5 (*7(*3*4.*1 &3 =*!;*1 &41 7*43!=* 8T9 % A 8.2* 2*&=*4;59 .2* 03* /, &3.(/F 4/65 A!.2 .2* -*;*3.!&; >;/<* 2(** /;1*(03*3 A*(* 3/6*.!6*3 1!3F .!4>0!32*1 ,(/6 .2*3* 09 8 *1!.&F .!/49 0 9&98 *6*6<(&4-*9 /! 8 /4>9 A2/3* A/(32!7 A&3 3&!1 ./ 2&=* <**4 !4.(/F 10-*1 <5 .2* ;/!13* .03 &41 72;&;.*3 4*&(/04. *;!-/4 2(&-!&4 3*..;*(3 !4 .2* !*(!&4 1!3.(!-. &. .2* ,//./ ;56703 &41 /, *;!-/4 !4 /*/.!& &(* 030&;;5 6*4.!/4*1 &3 .2* /(!>!4&; ,/041*(3 /, .2!3

A/(32!7' .' </.2' .2*3*' 7;&-*3' A*(*' .2*!(' /;1*3.'3&4-.0&(!*3' --/(1!4>'./'.2*'>*4*(&;' <*;!*,' .2*' ,&=/0(!.*' 2&04.3' /,' .2*' 03*3' A*(*' -*(.&!4' 37(!4>3' 4*&(' A2!-2' .*6 7;*3' &41' 3.&.0*3' 2&1' <**4' *(*-.*1' !4' .2*!(' 2/4/0(M &3.&;;&' &.' .2*' ,//.' /,' /04.' &(4&3303' &41' >J4!77*' &41' !77 -(*4*' /4' *;!-/4' 4*&(' .2*' ./A43' /,' 3-(&' &41' 2*37!3*' ,.*(' .2*' 1*-;!4*' /,' 3-(&' .2*' !42&<!.&4.3' /,' 2*37!&*' &..*41*1' ./' .2*' A/(32!7' /,' .2*' 03*3' &41' ./' .2*' &((&4>*F 6*4.3' ,/(' .2*' 6 03!-&;' -/4.*3.3' !4' .2*!(' 2/4/0(' .2&.' .//D' 7;&-*' /4-*' !4' ,!=*' 5*&(3' 2*5' A*(*' &;3/' &1/(*1' !4' 6&45' /.2*('7;&-*3' !4' (**-*' 203' .2*' .2*4!&43' /,,*(*1' .2*6' 3&-(!,!-*3' !4' .2*' 3-2//;3' A2!;*' .2*' 7&(.&43' 1!1' 3/' <*,/(*' <&..;*' 3' .2*' !4F 37!(!4>' 56723' /,' 37(!4>3' .2*5' A*(*' *&(;5' -/44*-.*1' A!.2' !/45303" .2*' >/1' /,' 7/*.3' 7/;;/' !3';//D*1' /4' &3' .2*!(' ;*&1*(' # 2 1 'A!.2'A2/6'.2*5'32&(*'.2*'D4/A >*' /,' 7&3.' 7(*3*4.' &41' ,0.0(*' 3' <*!4>3' .2&.' >;&11*4' 6*4' &41' >/13' A!.2' .2*!(' 3/4>' *3!/1'1*3-(!<*3'.2*6'&3'1A*;;!4>'/4' ;56F 703' &;/4>' A!.2' .2*' 2 (. 3' &41' !6 (3' 2*5' A*(*' (*7(*3*4.*1'!4'&(.'&3'=!(>!4'>/1F 1*33*3' A!.2' ;/4>' >&(6*4.3' /,' 6&45' ,/;13' &41' ,(*:0*4.;5' A!.2' &' -;/&D' <*3!1*3" .2*5' A*(*'4/.'1!3.!4>0!32*1'<5'37*-!&;'&..(!<0.*3' .!;;' -/67&(&.!=*;5';&.*(' .!6*3' 2*' /6&4' 7/*.3' !1*4.!,!*1' .2*6' A!.2' .2*' .&;!&4' $ " '7(/72*.!-' 56723' /,' 37(!4>3' &41' >/11*33*3'/,'<!(.2'A2/'2B'&'>(/=*'&.' /6*' /0.3!1*' .2*' , 'T " ' # ' 'A ' 2*' (**D3' >&=*' .2*' .!.;*' /,' 03*3' ./' .2*!(' 4!4*' 6/3.' 1!3.!4>0!32*1' 7/*.*33*3M (&O!;;&' /*(/' 4B.*' (!44&' *; 3!;;&' (!44&' /33!3' 5(.!3' &41' &772/ 03*06' ' 0

03!-' 8 (' 'P'&(.'/,'.2*' 03*3'I9 !4-;01*1'&6/4>'.2*' (**D3'*=*(5.2!4>'.2&.' <*;/4>*1'./'&'2!>2*(!4.*;;*-.0&;'&41'&(.!3.!-' *10-&.!/4' f ;&./' !4' 2!3' '7' $?' A2!;*' 1!3-033!4>'*10-&.!/4'3&53M H &4' A*' ,!41' &45'<*..*(' .2&4' .2*' /;1",&32!/4*1'3/(.' >564&3.!-' ,/(' .2*' </15' &41' 603!-' ,/(' .2*' 3/0;'#!'&41'&113M H' 2*4'5/0'37*&D'/,'603!-' 1'5/0'(&4D';!.*(&.0(*'041*(' 603!-'/(' 4/.'#!' H' '1/ I9 03!-' !4' .2*' 4&(((/A*(' *43*' A&3' (*>&(1*1' <5' .2*' (**D3' 4/.' /4;5' &3' &4' &>(**&<;*' &603*6*4.'<0.'&;3/'&3'/4*'/,'.2*' 6/3.' *,,*-.!=*' 6*&43' /,' -0;.!=&.!4>' .2*' ,**;!4>3'&41' .2*' -2&(&-' 2*'>(*&.'!6F 7/(.&4-*'.2*5'&..&-2*1'./'603!-'!3'&;3/'32/A4' <5'.2*!(!1*&.2&.'!.'A&3'/,'1!=!4*'/(!>!4* *(6*3' /(' 7/;;/' A*(*' 3&!1' ./' 2&=*' !4F =*4.*1' .2*' ;5(*' .2*4*' .2*' 3!67;*' ,;0.*' &4' .2*' 32*72*(1'3' 7!7*' *3!1*3' .2*3*' >/13'&41'.2*' 03*3' !/45303' &;3/' A&3' -/4F 4*-.*1' A!.2' 603!-' 06*(/03' 65.23' &3' ,/(' !43.&4-*' .2/3*' -/4-*(4!4>' 672!/0' &41' (72*03'.*;;'/,'!.3' 6!>2.5'7/A*('&41' .*3.!,5' ./' .2*' (**D3' 2&=!4>' 0;.!=&.*1' 603!-'&.'&'=*(5'*&(;5'*7/-2' .'A&3'&;A&53' !4.!6&.*;5'&;;!*1'./'7/*.(5' (!>!4&;;5'*7!-' 7/*63'A*(*'&;3/'304>'./'.2*'&--/67&4!6*4.' /,'.2*"ı $&41'.2*'/;1'2*(/*3'/,'7/*.(5' 30-2'&3' (72*03'&41' 033* '&(*'&.'.2*'3&6*' .!6*' 2*(/*3'*,' 603!-'K03.'&3'!4' 2!3./(!-&;' .!6*3'.2*';5(!-'&41' 1(&6&.!-' 7/*.3' A*(*'&.' .2*'3&6*'.!6*'.2*'-/67/3*(3'/,'.2*!('A/(D3' .'A&3'4/.'04.!;'.2*' ;*0&41(!&4'.!6*3'.2&.' .2*' 7/*.' -*&3*1' ./' <*' &;3/' &' 603!-!&4' A!4>'./'!.3'-/44*0!/4'A!.2' 7/*.(5'603!-' 1*=*;/7*1' !4' .2*' &6*' 7(/7/(.!/4' &41' ,;/0(!32*1'&.' .2*' 3&6*'7*(!/1'&3' ;5(!-'&41' 1(&6&.!-' 7/*.(5' ,' .2*' (**D' (&-*3'.2*' /(!&43' &41'! /;!&43' 2&1' &' 37*-!&;' >*4!03' &41'-&7&-!.5',/('603!-'&41'&6/4>'</.2'A*' G,!41' .2*' ,!(3.'.(&-*3' /,' !.3' 1*=*;/76*4.' &3' &4'&(.

2*' &-.0&;' ,/041&.!/4' /,' .2*' -;&33!-&;' 603!-' /,' .2Y (**D3' !3' &3-(!<*1' ./' ;) '8E 4 9 /,'.2*') /;!&4!3;&41'/,' *3</3' A2/' !4' /(!&4' 7&(.&'8&</0.' ' ?UV9 ,!(3.' >&=*' &' .(0;5'&(.!3.!-',/(6' ./' 3/4>' &--/67&4!*1'<5'.2*' " ' /(' " " $ &41' *37*-!&;;5'./' .2*' -!.2&(/1!-' # ' 8: = 9' 4' .2*' *;/7/44*3!&4' 3-2//;' /,' .2*' + 2' 8 ')$ A2/' ,/;;/A*1' 2!3' .*&-2!4>' &41' ,/(6*1' &' -;/3*;5'04!.*1'>0!;1' " " (*-*!=*1' !.3' ,0(.2*(' &(.!3.!-' 1*=*;/76*4.' 2&.' *(7&41*(' 2&1' 1/4*' ,/(' " " A&3' 1/4*' 4/.' ;/4>' &,.*(A&(13'<5' " N Z' /,' 2*2*3' /(' `>" ' ,/(' ' /(' 3/4>' &--/67&4!*1'<5'.2*' ,;0.*' 2*' &(.!3.!-' ,;0.*"7;&5!4>'A2!-2'2&1'<**4'*;&</(&.*1'<5' .2*' 2(5>!&4'1 $9 ' !4' 3!&'A&3'!4.(/F 10-*1'<5' ;/4*3' !4./' .2*' *;/7/44*303' A2!-2';/4>' (*6&!4*1' .2*' 7(!4-!7&;' 3*&.' /,' &;' 603!-&;' &(. ' ,' .2*' .A/'D!413'/,' !41*F 7*41*4.'!43.(06*4.&;' 603!-'A2!-2'.2(/0>2F /0.'7(*3077/3*3' .2*' 1*=*;/76*4.' /,' =/-&;' 603!-'&41'&;A&53'&1&7.3'!.3*;.'./'.2!3'&3'!.3' 6/1*;' .2*' *&(;!*('!3' .2*' 603!-'/4'.2*' ,;0.*' $A2!-2'A&3'*37*-!&;;5'<(/0>2.'!4./' ,&=/0(&<;*' 4/.!-*' "<5' $A A ' /,' (>/3' 8&</0.' /'VRN9'A2!;*'.2*' 603!-'/4'3.(!4>*1' !43.(06*4.3' " " $!3' ;&.*(' 03!-' A&3' 60-2'7(/6/.*1'<5'.2*'-/4.*3.3'&.' .2* 0<;!/',*3.!=&;3' &</=*' &;;' <5'.2/3*' &.' .2*' 5.2!&4'>&6*3' .3'2!>2*3.'7/!4.'/,' 1*=*F ;/76*4.' A&3' &..&!4*1' !4' .2*' .!6*' /,' .2*' *(3!&4' &(3' A2!-2' 3**63' ./' 2&=*' 3**4' .2*'-647;*.!/4'/,' .2*' &4-!*4.' 353.*6' &3' !.' 2&1'<**4'*;&</(&.*1'<5'.2*'.(&1!.!/4'/,' .2*' 3-2//;3' 2*' ;/"!-' 7/*.3' /,' .2!3' .!6*' &3' !41&(' &41' B!6/4,1*3' .2*' 1(&6&.!3.3' &3

2(B -2.!3 &41 B3-2B;43 A*(* 2*;1 .2* -(!.!-3 ./ <* 0430(7&33&<;* 6/1*;3 2&. A&3 &11*1 !4 30<3*:0*4. .!6*3 -&4 2&(1;5 <* -&;;*1 & 4*A 1*=*;/76*4. /, .2* &(. .2*43 !4 2*(>/;1*4 &>* A&3 .2* -*4.(&, -!.5 A2*(* 7(/,*33!/4&; 603!-!&43 6*. /4* &4/.2*("B .2*43 .2* 2/6* /, (**D 1(&B 6&.!-7/*.(5 . .2!3.!6*=/-&; -/6<!4*1 A!.2 !43.(06*4.&; 603!- ;&(>*;5 7(*=&!;*1 /=*(!43.(06*4.&; 603!-& ;/4* 2* ;&..*(A&3 -2!*,;5 ;!6!.*1 ./ 7*(,/(6&4-*3 4-!*4. !3 1!3.!4>0!32*1 !4 /4* !67/(.&4.7/!4.,(/6/0(3 .2(/0>2/0. -;&33!-&; .!6*3 7&(."3!4>!4> A&3 04D4/A4 361 .2*(* A&3 &. 6/3. &! 1!,,*(*4-* /, /-.&=*3 &41 .2&. /4;5 A2*4 6*4 &41 </53 3&4> !4 .2* 3&6* -2/!(>&!4 !4 -;&33!-&; .!6*3 .2* 603!- A&3 30</(1!4&.* ./ .2* A/(13 &41 A&3 .2*(*,/(* 4*-*33&(!;5 60-2 3!67;*(.2&4 !. !3 4/A .!3 /4;5 !4 .2!3 A&5 .2&. A* -&4 *07;&!4 .2* ,&-. .2&. &4 &4-!*4. &01!*4- -/0;1 ,/;;/A .2* 603!-&; (*7(*3*4.&.!/4 /, .2* /,.*4 !4.(!-&.* ;&4F >0&>* /, .2* /1*3 *=*4 A2*4 .2* /1*3 A*(* 304> <5 .2* A2/;* -2/!((!.!-3 (*>&(1*1 !. &3 & 1*-;!4* /, &(. A2*4 &. .2* *41 /, .2* *;/7/44*3!&4 &(. .2* 603!- <*>&4 ./ <* .2* !67/(.&4. *;*6*4. !43.*&1 /, .2* 7/*.(5 2!3 -2&4>* .//D 7;&-* &. ,!(3. !4 3!4>;* <(&4-2*3 /, .2* &(. &3 !4 .2* 3/;/3 & " "" .&"&>*15 &41 !4 .2* 1!.25" (&6<!- -2/(03*3 2*4-*,/(A&(1 &4-!*4. 603!- ;!D* 6/1*6 603!- (&!3*1 !.3*,, 6/(* &41 6/(* ./ &, (** &41 !41*7*41*4. 7/3!.!/4 <*3!1* .2&. /,7/*.(5 2* ,!(3. 7;&-* &6/4> .2* =&(!/03 D!413 /, 603!- A&3 &33!>4*1 ./ .2* !41!>*4/03 (< A2!-2 A&3 -/44*-.*1 A!.2 .2* ,!(3. 1*=*;/76*4. /, .2* 603!-&; &(." &41 !41**1 3.(!4>*1 !43.(06*4.3 A*(* &;A&53 6/(* *3.**6*1 .2&4 A!41 !43.(06*4.3 !4 7&(. /4 &--/04. /, .2* >(*&.*(.*-24!-&; 1!,,!-0;.!*3 A2!-2 2&1 ./ <* /=*(-/6* &41 A2!-2 ;*1 ./ 603!-!&43 >!=!4>7&(.!-0;&(&.F .*4.!/4 ./ .2*6 /(*/=*(7;&5!4> /4 .2* ,;0.* A&3 ;!6!.*1 ./ -*(.&!4 /--&3!/43 &3 !.3 3/041 3** 6*1 ./ .2* &4-!*4.3 ./ &(/03* *4.203!&36 &41 7&33!/4 f (!3./.;* , =!!! g 2*(* !3 *=!1*4-* .2&. /4 .2* /4* 2&41 .2* &4-!*4.2*/(5/, 3!4>!4> &41 /, !43.(06*4.&.!/4 8!4 37!.* /, .2* 7(!6!.!=* 4&.0(* /, .2* !43.(06*4.39 A&3<(/0>2.*./& 2!>2 1*>(** /, 7*(,*-.!/4 &41 .2&. /4 .2* /.2*(2&41 .2* 70<;!-6 03.2&=* 7/33*33*1 &3*=*(*;5 -(!.!-&; 01>6*4. !4 6&..*(3 /, 603!- 2* -2&(&-.*(!3.!-,*&.0(* /, &4-!*4. 603!- !3 .2* >(*&. -;*&(4*33 /, !.3 ,/(6 (*30;.!4> &</=* &;; ,(/6 .2* *0.(*6* 7(* -!3!/4 /, .2* (25.26!-.(*&.6*4.

f 4 &4-!*4. (**-* .2*(* A*(* -*(.&!4 D!413 /(, /(63 /, 603!- 2!-2 A*(* D4/A4 <5 4&.!/4&; /(.(!<&; 4&6*3 /(!&4 2(5>!&4 51!&4 /4!&4 &41 ;/;!&4 , .2*3* .2* /(!&4 &41 2(5>!&4 &(* (*>&(1*1<5 ;&./ &3 (*7(*3*4.!4> .2* 6*&4 !4 (*37*-. /, 7!.-2 A2!;* .2* 2!>2*3. =&(!*.!*3/, .2* 51!&4 8-&;;*1 !O/";51!&4 &41 54./4/";51!&49 &(* -/4.(&3.*1 A!.2 .2* /4!&4 &41 A!.2 .2* ;/A*(* =&(!*.5 /, .2* 51!&4 8&,.*(F A&(13 D4/A4 &3;; :a/";51!&4 .2* ;&3. A/<*!4> 1*3-(!<*1 &3 H 3;&-D I /(;/A !4 7!.-2 & 7 TR &41 (!3./.;* /;!.!-3 =!!! V &41 #9 &-2 /, .2*3* A>3 (*>&(1*1 &3 *07(*33!=* /, &7&(F .!-0;&(, **;!4> 8 203 .2* /(!&4 A&3 1**6*1 &77(/7(!&.*./*&(4*3.&41 A&(;!D* 6*;/1!*3 .2* 2(5>!&4 A&3 *0-!.!4> &41 *6/.!/4&;" .2* !O/";51!&4 7&.2*.!-&41 7;&!4.!=** 2* ;/;!&4 A&3 !4.*(6*1!&.* <*.A**4 .2* 2!>2 7!.-2*1! 51!&4 &41 .2* ;/A 7!.-2*1 /4!&4 B .2*43*43 7 ?@C * , &41 ?@? 2* .*(63 /4!&4 &41 0;!&4 ,*;;/0./,03* &41 .2* ,/;;/A!4>4&6*3 A*(* >*4*(&;;5 &77;!*1 ./ 3*=*4 ,/(63 /, 603!- 2*>!44!4> A!.2 .2* 2!>2*3.!4 7!.-2 &41 *41!4> A!.2 .2* ;/A*3.[!O/";51!&4 51!&4 2(5F >!&4 /(!&4 \B7/";51!&4 57/"72(5>!&4 &41 57/"1/(!&4 2*3* 3*=*4 ,/(63 A*(* D4/A4 &3 (" &(" 6*&4!4>;!.*(&;;5 &H,!..!4>I /(H &1K03.6*4. I 2*4-* .2* H .04!4>I /, &3*(!*3 ,/ 4/.*3 /(. 2* ,/(6&.!/4 /, &* H 3-&;*I9 2*5 A*(* &,.*(A&(13 D4/ &3 14/./(, (17-. .2* &.!4 &41 /0(6//13 /('H 6/1*3 I 0.2*.*(6 H 6/1*3I !3 &6<!>0/03 --/(1!4>./ 3/6* &0.2/(!.!*3 8 *3.72&; &41 2!3 ,/;;/A*(39 .2* &4-!*4.'H 6/1*3 I 1!,,*(*1 ,(/6/4*&4/.2*(&3.2* 6/1*(4 6&K/(6/1* 1!,,*(3 ,(/6 .2* 6!4/(4&6*;5!4 .2*/(1*('!4 A2!-2 .2*!4.*(=&;3 ,/;;/A /4*&4/.2*(.2* 1!,,*(*4-* !4 .2* ¢¢ 6/1*3I .203 1*7*41!4>/4 ,!* 7;&-* / .2* 3*6!*./4*3 !4 .2* /-.&=* .2*(3 3077/3* .2&. .2* .*(63 /(!&4 2(5>!&4 51!&4 &41 .2* (*3. A*(* &77;!*1 ./ 1!,,,*(*4.'3-&;*3 ,.2*3&6*H 6/1*I !4 .2* 6/1*6 3*43* /, .2* .*(6 2.!3 ($R C 6&!4.&!43 .2&. !4 .2* *&(;!*(7*(!/13 /((*0D 603!- 8$9 .2*(* !3 4/ 1!3.!4-.!/4 <*.A**4 H 6/1*3I & 2 " &41 H D*53I & " /([&41 8@9 .2&. .2* 603!-&; 3-&;*3 1*4/.*1 <5 . < B *(63 A*(* 7(!6&(!;5 1!3.!4>0!32*1 <5 1!,,*(*4-* /, (87 N9 /. .2* 7&33&>*3 :0/.*1 <5 (/4(/ ,(/6 ;0.&(-2 8 * -- ?R $V $U $T9 !4 3077/(./, .2* !1*4.!.5/, .2* (**D H 6/1*3 I &41 H D*53I 6&5 2* &11*1 ;0.&(-29 5 (-$N A2*(* .2* H D*53I & " &(* (*>&(1*1 &3 354/456/03 A!.2 .2* H 6/1*3I & (" [

3 .<* <&3!3 /, *=*(5 6*;/1!-3*(!*3 /, 3/0413 .2* &4-!*4.3 2&1 .2* (&3-&;* /, /0(4/.*3 ./ A2!-2 &--/(1!4> ./ .(&1!.!/4 .2* *&(;!*3. 603!- A&3 ;!6!.*1 2* ((-/43!3.*1 /, .A/ .*.(&F -2/(13 &3 .2* -*4.(&; 4/.* A&3 &./4-* .2* 2!>2*3./, .2* ,!(3. &41 .2* ;/ (*3 /, .2* 3*-/41 .*.(&-2/(1 2* 2*7.&-2/(1 A&3 -*(.&!4;5 !4 03* <*,/(* *(7&41*(2A2/ !3 3&!1 ./ 2&=* >!=*4 ./ .2*; 0 3*=*4 3.(!4>3 !43.*&1 /, ,/0(f .(&</ 7 ?$R * (*&;;5 !4-(*&3*1 .2* -/67&33 /, .2* 3-&;* ,(/6 .2* .A/ -/4K04-. .*.(&-2/(13 /, .2*

3*=*4"3.(!4>*1 ;5(* ./ &,0;/-.&=* A!.2F /0.!4-(*&3!4> .2* 406<*(/, .2* 3.(!4>3 2!3 2* 1!1 <5 &11!4> /4* 6/(* 3.(!4> &. .2* 077*(*41 /, .2* 3-&;* &41 .&D!4>&A&5 .2* 4*0.3.(!4><0. /4* (!3./.;* , R O!O @g 203 &(/3* .2* (/(/-.&=* &41 &.;&3. &,.*(=&(!/03 &11!.!/43 .2* ,/;;/AF !4>3-&;* /,4/.*3 A&3 ,/(6*1W

&41 -/4.!40*1 ./ <* 3&.!3,!*1 A!.2 &353.*6 /, 3-&;*3 8H 2&(6/4!*3I 304> <5 .2* 3/;* >0!1&4-* /, .2* *&(6/4>3.3.2* $ " A*(* 72!;/3/72*(3 30-2 &3 4; < . (,! - ! 03 &41 5$ /, *(6!/4* .2* 6&3.*(/, !41&(!3 6*4.!/4*1 &3 .2* ,!(3. &0.2/(/, & .2*/(*.!-&; A/(D /4 603!- 2* H 2&(F 6/4!-I ! 0,! 8K 0 9 /, &(*4.06 &

(/6 .2* ;/A*3. "/4A&(13 .2!3 3-&;* A&3 1!=!1*1 !4./ .*.(&-2/(13 !4 30-2 0 A&5 .2&. .2* ,/0(.2 4/.* A&3 &;A&53 &;3/ (*>&(1*1&3 .2* ,!(3./, .2* ,/;;/A!4>.*.(&-2/(1 f.2* !4.*(=&;3 <*.A**4 .2* /0413 /, .2* .*.(&-2/(1 A*(* !4 &3-*41!4>/(1*(3*6!".4* .4* ./4*g 2!3 3*:0*4-* A&3 -&;;*1 .2* " >*403 *3!1*3 .2!3 .2*(* A&3 &;3/ .2* (.2* .*.(&F -2/(13 /, A2!-2 A*(* &3 ,/;;/A3 % /D!1 f.2* !4.*(=&;3 !4 .2!3 -&3* A*(* 3*6!".4* 3*6!".4* ./4* &41 & 2&;g 2!(1;5 .2*(* A&3 .2* "(" .2* .*.(&-2/(1 /, A2!-2 f2&1 ,/(!.3 !4.*(=&;3 % ./4* % ./4* !./4*3 &41 &--/(1!4>;5g -&44/. <* *07(*33*1 !4 6/1*6 4/.&.!/4 f8 ** &;3/ 7 UNUg

!.2 (*>&(1./.2* " " !. 6&5 <* 6*4.!/4*1 .2&./4;5 .(!4>*1 !43.(06*4.3 8-K7 *37*-!&;;5 ! &41 * &41 .2* ,;0.* # A2!-2 -;/3*;5 (*3*6<;*1 /0(-;&(!/4*. A*(* *67;/5*1 !4 603!- 7(/7*(" &41 .2&. .2* /.2*(!43.(0F 6*4.3 30-2 &3.(067*.3 # $ # &43 7!7*3 # $* # -56<&;3 # : &41 D*..;*1(063 # *&)& A*(* 4/.!4F -;01*1 A!.2!4 !.3 7(/=!4-*

4 7(/7/(.!/4 ./.2* &6/04. /, &..*4.!/4 7&!1 ./ 603!- <5 .2* (**D3 !. *&(;5 <*-&6* .2* 30<K*-. /, ;*&(4*1 (*3*&(-2 &41 ;!.*(&(5 .(*&.6*4. 2* 7 2!;/ 72*(* J /--07!*1 2!63*;, A!.2 603!-&; &-/03.!-3 2* 30--**1*1 !4 (*7(*3*4.!4> 406*(!-&;;5 .2* (*;&.!/43 /, .2* /-.&=* .2* ,!,.2 &41 .2* ,/0(.2 /((*7(*3*4.!4> .2* 35672/4!- (*;&.!/43 .2* 5.2&>/(*&4 3-2//; !4=*4.*1 .2* " (/(" "& 3.(!4>3.(*.-2*1 /=*(&3/041!4> </&(1 &41 A!.2 & 6/=&<;* <(!1>* <5 6*&43 /, A2!-2 .2* 3.(!4> -/0;1 <* 1!=!1*1 !4./ 1!,,*(*4. ;*4>.23 !. A&3 /4 .2!3 &--/04. D4/A4 &3 .2* 3-2//; /, .2* $ " " &3 /77/3*1 ./ .2* " A2/ /77/3*1.2!3 !44/=&.!/4

707!; /, (!3./.;* A&3 2*;1 <5 .2* &4-!*4.3 ./ <* .2*>(*&.*3.&0.2/(!.5 /4 603!- ,(/6 2!3 406*(/03 /(D3 A&3 1(&A4 .2*>(*&.*3. 7&(./, 30<3*:0*4. 603!-&; ;!.*(&.0(* , /.2*(A(!.*(3 /4 603!- A* 6&5 6*4.!/4 .2* A*;;"D4/A4 6&.2*6&.!-!&4)(&41 .2* >(*&. &3.(/4/6*(")) ,! ,,!03 A2/ 7*(,*-.*1 603!-&; &-/03.!-3

6/4>.2* 7 " &4&.!=* 1*=*;/76*4. /, 603!- A&3 -/67;*.*;5 A&4.!4> 2*5 2&1 !41**1 &4 &4-!*4. !41!>*4/03 603!-&; !4F 3.(06*4. .2* 32/(. &41 3;*41*(&.!&4 ,;0.* A!.2 ,/0(2/;*3 <0. .2*!(4&.!/4&; &(./, ,;0.*"7;&5!4>A&3 &. &4*&(;5 7*(!/1 .2(/A4 !4./ .2* <&-D>(/041 <5 .2* .(03-&4 A2!-2 A&3 7(&-.!3*1 &3 &7(/,*33!/4 <5 ,/(*!>4*(3 ,(**16*4 &41 7*/7;* /, .2J ;/A*3 -;&33*3 /, .2* /6&4 7/70;&.!/4 6/4> .2* 4!4* /;1 >0!;13 3&!1 ./ 2&=* <**4 !43.!.0.*1 <5 D!4> 06&* .2*(* A&3 /4* /, ,;0.*"7;&5*(3 # " A2/ &33!3.*1 &. 70<;!- 3&-(!J*3 !.2 .2* (**D 1(&6& (**D 1(&6&.!- 603!- A&3 &;3/ !4.(/10-*1 !. A&3 2/AF *=*(;!6!.*1 ./ ,;0.*"7;&5!4> # > .(!4>*1 !43.(06*4.3 A*(* 4/. /(!>!4&;;5 D4/A4 &. /6* &41 A*(* 4/. ,(*:0*4.;5 *67;/5*1 .!;; &,.*(.2* 3*-/41 04!- &(41**1 &3 (**D 03&>*3 &41 6&44*(3 !4 >*4*(&;>&!4*1>(/041 A!.2.2*<*>!44!4>/, .2* !41 -*4.0(5 3/ &;3/ 1!1 (**D 603!- (**D 1&4-*3 &41 603!-&; *4.*(.&!46*4.3 <*-&6* -/66/4 &. .2* 6*&;3 /, &(!3./-(&.!- ,&6!;!*3 &41 .2* 5/04>*(6*6<*(3 /, (*F 37*-.&<;* 2/03*2/;13 (*-*!=*1 !43.(0-.!/4 !4 603!- &3 !4 1&4-!4> 2/0>2 !. A&3 &,.*(A&(13 /4* /, .2* 30<K*-.3 /, 2!>2*(*10-&.!/4 !. A&3 4*=*(-/43!1*(*1 &((*&; &41 *,,*-.!=* 6*&43 /, .(&!4!4> 4.*(F .&!46*4.3 ;!D* /0(-/4-*(.3 <*-&6* ,(*:0*4. ./A&(13 .2* *41 /, .2* *70<;!- &41 ,/(6*1 7&(./, .2* 603!-&; -/4.*3.3 !43.!F .0.*1 <5 *(/ & >(*&. ;/=*(/, 603!- !4 ?N /4 .2* 6/1*; /, .2* (**D -/4.*3.3

/ 6 !..!&4' 2&1' &4' - ' <0!;.' /4' .2*' B$ ' " ' 8 !*;1' /,' &(3@ ,/(' .2*' .003!-&;' *4.*(.&!4 6*4.3' /,' .2*' 1 "' $ 2' (" ' !43.!.0.*1' <5' 2! 6' !4' ' " ' &41' -*;'*<(&.*1' &.' !4.*(=&;3' / ,' ,/0(' 5*&(3' ./' .2*' *41' /,' .2*' -;&33!-&;' 7*(!/1 [&33&>*3' <*&(F !4>' /4' 6 03!-' !4' / 6 &4' ;!.*(&.0(*' 2&=*' 4/' !41*7*41*4.' =&;0*' &3' .2*5' 6*' *4.!(*;5' 1(&A4' ,(/ 6' (**D' 3/0(-*B [/(' / 6 &4' :' ' ')) ' 8@@' " ' 0.&' ' 0

5(6 ;1!<!"3' ' (&-*' !4' /0.2*(4' 2*3F 3&;5' 3&!1' ./' 2&=*' /(!>!4&;;5' 1A*;.' !4' .2*' !3;&41' /,' E>!4&' &41' ./' 2&=*' * 6 !>(&.*1' ,(/ 6' !.' A!.2' *;*03' 2*5' ,/0>2.' <*,/(*' (/5' 041*(' .2*!(' -2!*,.&!4' -2!;;*3' /(' ;*>*413' &</0.' .2*!(' /(!>!4 ' ' (

5(6 !;;/ ' @ &

g 'B(1!!' 4*' /,' .2*' 6 /3.' -*;*<(&.*1' (**D' &(.!3.3' /,' ;*0.2>(3*' !4' ..!-&' &4' /;1*(' -/4.* 6 7/(&(5' /,' 1 &3' &41' ";5-;!.03 &41' ;!D*' .2* 6' &' 707!;' /,' >1;&1&3' !3' A/(D3' -2!*,;5' !4' <(/4Q*B' A*(*' 40 6*(/03' &41' =*(5' =&(!*1' !4' 30<\(*-.' >/13' 2*(/*3' &41' *37*-!&;;5' &.2;*.*3' &41' (*7(*3*4.&.!/43' /,' &4! 6&;3' A2!-2' A*(*' &1 6 !(*1' <5' .2*' &4-!*4.3' ,/(' .2*!(' ;!,*;!D*' .(0.2' ./' 4&.0(*' /3.',&6 /03' & 6 /4>' .2*3*' A*(*' 2!3' 3.&.0*' /,' .2*' (>!=*' (044*(' ; F *' 2!3' 5 ' 8/(' S0/!.'" .2(/A*(' ' -0.9' A2!-2' A*' &(*' *4&<;*1' ./' &7F 7(*-!&.*' !4' 3*=*(&;' -/7!*3' !4' 6&(<;*' .2*' <*3.' <*!4>' .2&.' !4' a N N .2*' &;&QQ/' *33! 6 !' 8 / 6 *a' > ' 133! 6 ! 9 !4' /(4*\!' &41' 2!3' $ @' "' (' 2 ' ' (" ' A2!-2' (*-*!=*1' .2*' =*(5' 2!>2*3.' 7(&!3*' & 6 /4>' .2*' &4-!*4.3' A&3' -*;*<(&.*1' f!4' ?' *0.&4.' *7!F >(& 6 3' !4' .2*' 6 ' " (1:' &;;' :0/.*1' !4' =*(<*-D 3' (" ' ` ' VVN"VRRg' &41' 6&5' <*' (*>&(1*1' &3' 2!3' 6&3.*(7!*-*' *' A&3' &;3/' .2*' ,!(3.' ./' (*7(*3*4.' A2&.' !3' (*&;;5' &' 1 " ' 7/(.(&!.' !4' 2!3' 5 " "' ' M "' f ;\45' > ' ' 000=!' @" <0.' .2!3' !3' 4/A' &..(!<0.*1' ./' &4/.2*(' &(.!3.' /4*' /-(&.*3' =*(<*-D' ` ' @NT@g 5((2&' /.2*(' /,' 1/4!3' <5' 2*(' /A4' ,&.2*(' !45(&3' 8$ ' 5(. &' ' ,1) 5(.;;03' /4' /,' *(6*3' -2&(!/.**(' /, 8 4 6 03' A2/3/' 1*,*&.' <5' ;/73' A&3' 10*' ./' 2!3' .(*&-2*(5' 2*4' 2*' 1*6&41*1' .2*' (*A&(1' .2&.' 2&!1' <**4' 3*..;*1' .2*' 2&,;' / ,' .2*' (*&;6' /,' 8 4/4;&03' *;/73' .2(*A' 2! 6' !4./' .2*' 3*&' 4*&(' (3*3.03' !4' 0<-*&' &41' .2&.' 7&(./,' .2*' \ >*&4' A&3' .2*4-*' -&;;*1' .2*' 5(./&4 *&' & ' . &) ' &41' f 53' ' ,&6/03' ./(*0.!-' &(.!3.' A2/' *4F >(&=*1' .2*' ' ' (' $ " ' /4' .2*' !43!1*' /,' .2*' 32!*;1' / ,' .2*' .2*4*' (6 '" -2"3' /,' 2!1!&3' 2*' A/(D' A&3' *0*-0.*1' &,.*(' &' 1*3!>4' <5' &((2,.3!03' 8 &03&4!&3' !' @R' `' @9' &' >*4*(&./!4' &,.*(' 2!1!&3' .' A&3' &((2&3!03' &;3/' A2/' 1*3!>4*1' .2*' $ ' + :',/(' &' -07' * 6 </33 !' <5' 53' 8 .2*'" 4)03' 7' UR@' ' ' *' !3' &;3/' 6*4.!/4*1' !4' (/7*(.!03' !!!' U $@\' &41' &(.!&;' =!!!' C' V$' 0!=@V g' f g 53.+' 2*' (**D' .*(6' ,/(' .2/3*' A2/' 2&1' <**4' !4!.!&.*1' !4./' .2*' 653.*(!*3' /,' .2*' ;*33*(' ;*03!4!&' # ' ') 53.*(!*3' 2*' 4&6*'>!=*4'<5'.2*' (**D3' &41' ;&.*(' &;3/' <5' .2*' / 6 &43' ./' =&(!/03' D!413' /,' 3*-(*./ A/(32!73' A2!-2' (*3.*1' /4' .2*' <*;!*,'.2&.' <*<*3!1*3' .2*' >*4*(&;' 6 /1*3' /,' 2/4/0(!4>' .2*' >/13' .2*(*' A&3' &4/.2*(' (*F =*&;*1' /4;5' ./' .2*3*;*-.',*A' 0-2' (*;!>!/03' 3*(=!-*3' ,/(6*1' !4' &;6/3.' &;' .2*' (**D' 3.&.*3' &4' !67/(.&4.' 7&(./,' .2*' *3.&<;!32*1' A/(32!7' &41' A*(*' !4' .2*' 2&413' /,' &4!67/(F .&4.' </15' /,' 7(!*3.3' &77/!4.*1' <5' .2*' .&.*' ,' &45' /4*' 1!=0;>*1' ./' .2*' 04!4!.!&.*1' .2*' 2/;5'-*(*6/4!*3' &41' 7(&5*(3' /(' 3/6*.!6*3' *=*4' .2*' 4&6*3' /4;5' <5' A2!-2' .2*' >/13' A*(*' !4=/D*1' 2*' A&3' 70<;!-;5' 704!32*1',/(' !67!*.5' /6*' 653.*(!*3' A*(*' *0-;03!=*;5' 6&4&>*1' <5' 37*-!&;' 7(!*3.3' &41' &33!3.&4.3' ./' .2*' *0-;03!/4' /,' &;;' ;&56*4' /' /.2*(3' &' -*(.&!4' -;&33' /,' -!.!Q*43' A&3' &16!..*1' .203' .2*' ..!-' +((' -/0;1' /4;5' <*' -*;*<(&.*1' <5' A/6*4' ;!=!4>' !4' ;&A,0;' A*1F ;/-D' A!.2' &' -!.!Q*4' &41' .2*63*;=*3' /,' 70(*' .2*4!&4' 1*3-*4.' &41' /,' 04<;*6!32*1' (*70.&F .!/4' ./.2*(' 653.*(!*3' 7*/7;*' /,' *=*(5' D!41' &41' *!.2*(' 3*0' A*(*' &;;/A*1' ./' <*' 7(*F 3*4.' !,' .2*5' 2&1' -&((!*1' /0.' -*(.&!4' 7(*;!F 6!4&(5' -/41!.!/43' 8*37*-!&;;5' 70(!,!-&.!/49' &41' 2&1' .2*4' <**4' &16!..*1' &41' !4!.!&.*1 2*' 03&>*3' -/44*-.*1' !.2' .2*' 4&.!=*' 653.*(!*3' A*(*' 3!6!;&(' ./' .2*' -*(*6/4!*3' /,' (**D' 1!=!4*' 3*(=!-*' !4' .2*' -/0(3*' /,' .!6*' 2/A*=*(' 6&45' /.2*(' *;*6*4.3' A*(*' </((/A*1' ,(/6',/(*!>4' 6/1*3' /,' A/(32!7' 2*5'-/43!3.*1' 030&;;5' !4' .2*' (*-!.&;' /,'-*(F .&!4' ;*>*413' &</0.' .2*' ,/(.04*3' /,' .2*' 1*!.5' -*;*<(&.*1' A2!-2' 1!,,*(*1',/(6' .2*' /(1!4&(5' 65.23' !4' 6&45' (*37*-.3' # 1' .2*' 4&6*3' &41' >*4*&;/>!*39' &41' A*(*' /,.*' &--/67&4!*1' <5' &' 1(&6&.!-' (*7(*3*4.&.!/4' A!.2' A2!-2' &3

-/44*-.*1' .2*' *02!<!.!/4' /,' -*(.&!4' 2/;5' .2!4>3' !4-;01!4>' 356</;3' &41' (*;!-3' 4' 6&45' -&3*3' .2*' 356</;3' A*(*' 4/.' 2!11*4' ,(/6' .2*' 70<;!-' *5*' <0.' .2*!(' 6*&4!4>' A&3' (*=*&;*1' ./' .2*' !4!.!&.*1' &;/4*' ,' 4&.!=*' 653.*(!*3' .2/3*' -/43!1*(*1' 6/3.' 2/;5' A*(*' .2*' 9 " "' 653.*(!*3' /,' !7*.*(' A*' D4/A' 6/(*' &</0.' .2*' -*(*6/4!*3' !4' .2!3' -&3*' .2&4' !4' &45' /.2*(' # ' *0.'./' .2*3*' -&6*' .2*' &6/.2(&-!&4' 653F .*(!*3' /,' .2*' $ ' # I' A2!-2' !4' -/0(3*' /,' .!6*' &77*&(' ./' 2&=*' <*-/6*' =*(5' 3!6!;&(' ./' .2*' ;*03!4!&4' 4' .2*3*' .A/' 653.*(!*3' &3' !41**1' !4' &;;' 4/' 1**7*(' 6*&4!4>' A&3' /(!>!4&;;5'&..&-2*1' ./' .2*' ;*>*413' 03&>*3' &41' 356</;3' 0.' &3' .!6*' A*4.' /4' .2*3*' !4!.!&.!/43' A*(*' 3077/3*1' ./' 2&=*' &' 7*-0;!&(' 7/A*(' /,' 7(*3*(=!4>' 6*4' &6!1' .2*' 1&4>*(3' " /,' .2!3' ;!,*' <5' 70(!,!-&.!/4' &41' *07!&.!/4' /,' >!=!4>' 2!6' &' .*67/(&(5'<;*33*14*33'&4&' &</=*' &;;' /,' -/4,*((!4>' &' 30(*' 7(/37*-.' /,' &' 3.&.*' /,' <;!33' &,.*(' 1*&.2' f 3/-(&.*3' , " 1' `' @R g' 2!3' -2&4>*' !3' !4' >(*&.' 7&(.' 10*' ./' .2*' !4,;0*4-*' /,' &' 3*-.' .2*' '& ' 5) ' /;;7A!4>' (!*4.&;' >57.!&4' &41' &;3/' 5.2&>/(*&4' 1/-.(!4*3' \ .2*5'.&0>2.' .2&.' *07!&.!/4' &41' 3&4-.!,!-&.!/4' t A*(*' 4*-*33&(5',/(' .2!3' &41',/('&',0.0(*';!,*' &41' .2&.' .2*3*' 603.' <*' *,!*-.*' <5' 6*&43' /,' .2*' !4!.!&.!/43' &41' 70(!,!-&.!/43' A2!-2' .2*5' 7(*.*41*1' (72*03' 2&1' (*=*&;*1' ./' .2*6' 2/3*' A2/' *4K/5*1' .2*3*' (*=*;&.!/43 /,' (72*03' -/43.!.0.*1' &' (*;!>!/03' 3/-!*.5' A2!-2' >(&10&;;5'*0.*41*1' ./' *=*(5' (**D' -/04.(5' 2*!(' (*;!>!/03' 3*(=!-*3' A*(*' &;3/' -&;;*1' 653.*(!*3' 4/.' /4;5' <*-&03*' .2*' !4!F .!&.*1' &;/4*' -/0;1' .&D*' 7&(.' !4' .2*6' <0.' <*-&03*' .2*' (*7(*3*4.&.!/43' &41' 03&>*3' -/44*-.*1' A!.2' .2*6' 2&1' &' 2!11*4' 653.!-' 6*&4!4>' .' A&3' -2!*,;5' /A!4>' ./' .2*!(' !4,;0*4-*' .2&.' ,/(*!>4' 653.*(!*3' A*(*' !4.(/F 10-*1' !4./' (**-*' &41' .2&.' 203' .2*=&(!/03' 353.*63' A*(*' <;*41*1' ./>*.2*(' 6/4>' ,/(*!>4' 653.*(!*3' 603.' <*' 6*4.!/4*1' .2*' A!;1' &41',&4&.!-' /(>!*3' /,' 5 ": ' 8/(' (' Q ' &41' $ ' 2*',!(3./,' .2*3*'>&!4*1'&,//.!4>'!4' /6*' &41' .&;5'041*(' .2*' 4&6*' /,' (" ' &41' !4' $R?' ' ' 2&1' ./' <*' ,!(6;5'3077(*33*1' <5' .2*' >/=*(46*4.' /4' &--/04.'/,' .2*' *0F -*33*3' -/44*-.*1' A!.2' .2*6' f !=5' 000!0' R"$Tg" A2!;*' .2*' ;&3."6*4.!/4*1' A*(*' 6/3.' A!1*;5'37(*&1'*=*4'!4'*&(;5'!67*(!&;' .!6*3" & ' -/ ' 2*' 653.*(!*3'-/44*-.*1'A!.2' .2*' A/(32!7' /,' ' ' &41' /,' (' & ' A*(*' &;3/' 2*;1' !4' 2!>2' *3.**6' <5' (**D3' &41' /6&43' 1/A4' ./' &;&.*' 7*(!/1' 2*' A2/;*'353.*6' /,' 653.*(!*3' *410(*1'./' .2*' =*(5'*41' /,' .2*' 7&>&4' .!6*3' ,/(' .2*' 1**7*(' 6*&4!4>' /,' !.3' 356</;!36' /,,*(*(1'&' -*(.&!4' 3&.!3,&-.!/4' *=*4' ./' .2*' (*;!>!/03' (*:0!(*" ' 6*4.3' /,' .2*' *10-&.*1' A2!-2' .2*5',&!;*1' ./' ,!41' !4' .2*' *67.5',/(63' /,' .2*' /(1!4&(5' A/(32!7' &$ ' 5

!*4!&' 7(/7*(;5'37*;.' *4!&'&

3=!03'&6 " ' ' /6&4'*7!-'&41'1(&F 6&.!-'7/*.' /6' &77&(*4.;5'!4' &67&4!&' &</0.' @UN' ' ' <*' 3*(=*1' !4' .2*' /6&4' &(65'10(!4>'.2*',!(3.' 04!-' &(" &41'3*.F .;!4>'&,.*(' .2!3'&.' /6*'2*'<(/0>2.'2!3',!(3.' 7;&5'07/4' .2*' 3.&>*' !4' @ V' '3//4' &,.*(' .2*',!(3.' &77*&(&4-*' /,' !=!03' 41(/4!-03' A!4>'./' .2*;!-*43*' &41' (*-D;*334*33'A!.2' A2!-2'2*' !4-*33&4.;5'&..&-D*1' .2*' /6&4' 4/<;*3'*37*-!&;;5'.2*' *.*;;!'2*'A&3'.2(/=6' !4./'7(!3/4'&41'.2/0>2' ;!<*(&.*1'.2*4-*'<5' .2*' .(!<04*3'/,' .2*' 7*/7;*' A&3' &,.*(A&(13' <&4!32*1',(/6' /6*' *' 1!*1' !4' *0!;*' &.' .!-&'&<0.'@NN

!3' 7/*.!-&;' &--/04.' /,' .2*' ,!(3.' 04!-' &(' &' ' , " ' A(!..*4' !4' /;1' &>*' !4' .2*' &.0(4!&4' 6*.(*' 6&1*' 2!6' .2*' -(*&./(' /,' .2*' /6&4' 4&.!/4&;' *7!-' ' 2*' A/(D' /(!>!4&;;5',/(6*1' /4*' -/4.!40/03' A2/;*' <0.' &.' &;&;*(' .!6*' A&3' 1!=!1*1' !4./' 3*=*4' </!D3' <5' .2*' 3-2/;&(' -.&=!03' &6'" 7&1;/' 2*',(&>6*4.3' 7(*3*(=*1' >!=*' .2* !67(*33!/4' /,' !.3' 2&=!4>' <**4' ;!..;*' 6/(*' .2&4' &' -2(/4!-;*' !4' =*(3*' 41**1' *=*4' !4' !.3' 7;&4' !.'<*&(3'&' -;/3*'(*3*6<;&4-*' ./' .2*' 7(/*-2(/4!-;*3'/,' .2*' /6&4'&44&;!3.3'',/(' 2*(*'&3' .2*(*' .2*' (*&;' 30<*-.'/,' .2*' 7/*6' A&3' 7(*-*1*1' <5' &4' &--/04.' /,' .2*' *&(;5' 2!3./(5' /,' /6**1&.!4>',(/6' .2*' ,;!>2.'/,' ! 4*&3' ,(/6' (/5' 3*=!03' &;3/' 6&1*' &4' !67/(.&4.' 1*7&(.0(*' !4' .2*' 7(/=!4-*' /,' 1(&6&.!-' 7/*.(5' <5' -(*&.!4>' &' 4&.!/4&;' 1(&6&' *3!1*3' !6!.&.!/43' /,' (**D' .(&F >*1!*3' /,' A2!-2' 3*=*4' &;/4*' &(*' D4/A4' <5' 4&6*' &41' <5' *0.&4.',(&>6*4.3' !.' A&3' 2*' A2/' ,!(3.' &..*67.*1'./' &1&7.' .2*' 6&.*(!&;3' /,' 2!3' -/04.(53' 2!3./(5' ./' .2*' 1(&6&.!-' ,/(6' 2&41*1' 1/A4' <5' .2*' (**D3' 203' !4' .2*' ,' /(' ;' 2*' .(*&.3' /,' .2*' 5/0.2' /,' /60;03' &41' *603" &41' !4' .2*' 7;&5' $ ' /,' &' -/4.*67/(&(5' 2!3F ./(!-&;' *=*4.' (/6' .2*' 406<*(' /,' .!.;*3' /,' 2!3' -/6*1!*3'3.!;;'7(*3*(=*1'8/=*(' .2!(.59' &41',(/6' .2*' =*(1!-.' /,' &4.!:0!.5' A*' 6&5' !4,*(' .2&.' 2!3' ,/(.*' ;&5' !4' -/6*15" <*

&77*&(3 ./ 2&=* <**4 4/ 6*(* .(&43;&./(/ 2!3 (**D /(!>!4&;3 <0. ./ 2&=* 2&41;*1 .2* 6 A!.2 -/43!1*(&<;* ,(**1/6 . A&3 !4 2!3 -/6*1!*3 *37*-!&;;5 .2&. 2* !4.(/10-*1 2!3 &..&-D3 /4 6*4 &41 *=*4.3 / .2* 1&5 &!&13 8 (> 2* 56723 / (!=*(3 &41 37(!4>3 # * & &6&.;&..03 #$ 9 /6&4 7/*. <5 <!(.2 & &0; &41 & 7&>&4 A2/ A&3 . 61*(/4/(!03 !4) C$? ,.*(.2* 3&-D / /6* <5 ;&(!- 2* (*.0(4*1 ./ 2!3 4&.!=* -/04.(5 (&=&>*1 &. .2&. .!6* <5 .2* !3!>/.23 &41 1*3-(!<*1 2!3 K/0(4*5 2/6* !4 .A / <//D3 7 / A2!-2 .2* <*>!44!4> / .2* ,!(3. &41 .2* *41 / .2* 3*-/41 2&=* 7*(!32*1 2* 7 *6 !3 70(* &41 -/((*-. !4 ;&4>0&>* &41 6*.(!-&; /(6 &41 !3 !4.*(*3.!4> /4 &--/04. / !.3 7&.2*.!-1*3-(!7.!/4 / .2* 6!3,/(.04*3 / .2* .!6* &6*3 8$9 2* 6 2&1 4/ 4&6*3 1*4/.!4> : 4/.2!4> -/((*37/41!4> ./ /4(30(4&6*3 *4-* .2* 4&6* / .2* 4*A"</(4 -2!;1 A&3 ;*, ./ .2* ,(**-2/!-* / .2* 7&(*4.3 ;!D* .2* 2(!3.!&4 4&6* A!.2 03 .2* -2!;1 032&!;5 (*-*!=*1 !. /4 .2* 3*=*4.2 /(.*4.2 1&5 &,.*(<!(.2 .2* /--&F 3!/4 <*!4>& ,&6!;5 ,*3.!=&; --/(1!4> ./ .2* 6/3.&4-!*4.-03./6 .2* 3/4 *37*-!&;;5 .2* ,!(3."</(4 (*-*!=*1 .2* 4&6* / 2!3 >(&41,&.2*(3/6*.!6*3 .2&. / 2!3 ,&.2*(/(&4&6* 1*(!=*1 (/6 !.8 2?-V3B 21-!?4 /(3!6!;&(;5 -/67/041*1 8 2* 72(&3.23 [2 21/(39 3 & (0; & (**D /4;5 2&1 /4 4&6* ./ A2!-2 A&3 &11*1 .2&. / 2!3 ,&.2*(./ 7(*=*4. -/4,03!/4 20-5F 1!1*3 # .2* 3/49 / ;2(03 >(*&. 6&45 4&6*3 A*(* -/67/041*1 A!.2 .2* 4&6*3 / >/13 5 1 " (1*(!=*1 ,(/6 .2*6 " (*:0*4.;5 4&6*3 / >//1 /6*4 ,/(.2* ,0.0(* / .2* -2!;1 A*(* -2/3*4 /6*.!6*3 &4*A 4&6* A&3 &,.*(A&(13 30<3.!.0.*1 ,/(.2* /(!>!4&; /4*" 3/ ;&./ A&3 /(!>!4&;;5 -&;;*1 (!3" . -;*3 &41 2*272(&3.03 0.&603 ;&=*3 A*(* 030&;;5 -&;;*1 &,.*(.2*!(4&.!=* -/04F .(5 /(.2*!(7253!-&; /(6/(&;7*-0;!&(!.!*3 8@9 2* 7 " !4 .2* (*70<;!-&4 .!6*3 2&1 .2*!(4&6*3 !4 .2* ,/;;/A!4> /(1*(M "8_/0(H 2(!3.!&4 4&6*!9 "M "84&6* / (&-* >*4.!;* 4&6*9 1" R "830(4&6* 1*4/.!4> .2* ,&6!;59 2* 1 " " A2!-2 /(!>!4&;;5 8&;A&53 !4 7&.(!-!&4 4&6*39 2&1 ,/(1*(!=&.!=* 30,,!0 2 8* > " $ + A& -/6 6/4 ./ &;; .2/3* -/44*-.*1 A!.2 .2* 1 " 6*4 A/6*4 -;!*4.3 &41 ,(**16*4 2* " " A&3 >!=*4 ./ 3/43 /4 .2* .2!(1 1&5 &,.*(<!(.2 .2* &41 A&3 /,,!-!&;;5 -/4,!(6*1 A2*4 .2* 1 A&3 &330 6*1 &41 .2* 4&6* A&3 !4F 3-(!<*1 /4 .2*(/;; / -!.!Q*43 2* /(!>!4&; 6*&4!4> / " !4 A2!-2 .2*(/ A&3 3/6*.!6*3 & (*,*(*4-* ./ 7*-0;!&(-!(-063.&4-*3 &. <!(.2 8* > ; O(<5 1&5 " !(!4 .2* 6/(4!4>' T " .2*,!,.2 5 .2* .*4.29 -&6& ./ <*1!3(*>&(1*1!4 .2* -/0(3* / .!6* A2*4 .2* 4&6* A&3 >!=*4 3 2 (0;* .2* *;1*3 3/4 (*-*!=*1 .2* " / 2!3 ,&.2*(.2*3* .2*(* A&3 &-/67&(&.!=*;5 ;!6!.*1 406*(!4 .2* 4/<; ,&6!;!*3 3/6* A*(* 67;/5*1 /4;5 <5 -*(.&!4 1 " *=*4 <5 -*(.&!4 ,&6!;!*3 &3 ,/(!43.&4-* *0-;03!=*;5 <5 .2* $ &41 + *37*-!&;;5 <5 .2* > " A2/<*;/4>*1 . .2!3 (&-*" A2!;* .2*(3 d *(* &-.0&;;5 7(/F 2!<!.*1 !4 -*(.&!4 ,&6!;!*3 * > !4 .2&. / .2* " ! 2* " " A&3" 030&;;5 A(!..*4 !4 &4 &<<(*=!&.*1 ,/(6 " .203 3.&413 ,/(,/(6 4 ,/(6 " ,/(5 ,/(; ,/(" ,/(, S ,/(T *(,/(*/(*0 ,/(- ! ,/(+ (,/(+ 2* E " # 1" " .2* 03*(,A2!-2 A&3 !4 *&(;5 .!6*3 4/ -03./6&(5 &6/4> .2* 7;*<*!&43 3*(=*1 ./ 1*4/.* &41 1!3.!4F >0!32 .2* 1!,,*(*4. ,&6!;!*3 / .2* 3&6* (&-* A2!-2 /,.*4 !4-;01*1 3*=*(&; 7&.(!-!&4 &41 7;*<*!&4 203 .2*1 " $ " -/67(!3*1 .2* 7&.(!-!&4 ,&6!;!*3 / .2* " N * *.- &41 .2* 7;*<*!&4 ,&6!;!*3 / .2* 5 ; " *.- f .!3 .(0* .2&.3/6* 7&.(!-!&4 ,&6!;!*3 2&1 ,!0*1 1" " 8* > > <0.!.A&3 :0!.* -/66/4 /(7;*<*!&4) ./ .&D* 1" " /(./ 2&=* .2*6 >!=*4" 1 4 /67*!03 1" N 3!4! 3 &41 2!3 3/4 3!4!03 6 /6* 7;*<*!&4) 4*=*(.//D & 1" " * > .2* 4./4!! 0.2* + &(* $ " !4 .2* ;&3.-*4F .0(5 /.2* *70<;!- $ 1" " A2*.2*(!0*1 /(/.2*(A!3* &(* >*4*(&;;5 / .2& 4&.0(* / .2* 4!-D4&6*3 /(&.&45 (&.* &11 & 1*3-(!7.!/4 /3/6* 7*(3/4&; -2&(&-.*(!3.!-' * > > 6 " 7 [/ .2* 30(4&6* .2*(* A&3 3/6*.!6*) &11*1 & 3*-/41 &41 *=*4 & .2!(1 !4 ;&.*(.!6*3 -&;;*1 .2* 1" " ./ !41!-&./ & ;&.*(&;<(&4-2 / .2*,&6!;5 /(!43.&4-* .2* " > # /(!4 6*6/!5 / 3/6* (*6&(D&<;* *07;/!.!4 A& 8* > 2 " *.- 9 /(!4 -/43*:0*4-* / & 7/70;&(1*3!>4&.!/4 8* > ! > / (/ &4 &1/7.!/4 .A3 .2* /(!"

>!4&;' -03./ 6',/(' .2*' &1/7.*1'3/4' /4'7&33!4>' ,(/ 6' /4*' 1 " ' .' &4/.2*(' ./' &11' ./' .2*' " "' " "' &41' 1" "' /,' 2!3' &1/7.!=*' ,&.2*(' .2*' 4&6*' /,' 2!3' /A4',/(6*(' 1 " ' A!.2' .2*' .*(6!4&.!/4' 2 " ' 203' .2*' ,0;;' 4&6*' /,' .2*' 1*3.(/5*(' /,' &(.2&>*' .2*' 3/4' /,' ' ! 6!;!03' &0;03' &1/7.*1' 25' /4*' /,' .2*' -!7!/3' A&3' 80<;!039' /(4*F ;!03' -!7!/' ,(!-&403' 6!;!&403' ,.*(' &</0.' UN' ' .2*(*' A*(*' 6&45' !((*>0;&!!"' .!*3' !4' .2*' A&5' .2*3*' 4&6*3' A*(*' >!=*4' .2*' .*41*4-5' <*!4>' ./' >!=*' =*(5' 6&45 /6*4' /(!>!4&;;5' 2&1' /4;5' /4*' 4&6*' .2*' ,*6!4!4*' ,/(6' /,' .2*' >*4.!;*' 4&6*' /!' .2*!(' ,&.2*(' 1' /(4*;!&' 4' ;&.*(' .!6*3' .2*5' 3/6*.!6*3' 2&1' " "' &;3/' A2!-2' .2*5' (*-*!=*1' /4' 6&((!&>*' .' A&3' .2*' ,*6!4!4*' ,/(6' /,' .2*' 203<&413' " "' 1' &!&' /6*.!6*3' .2*5' 2&1'</.2'4&6*3' 1' 0;&' /(4*;!&' 2*' " "' A*4.' /0.' /,' 03*',/(' &' .!6*' 10(!4>' .2*' ;&.*(' *F 70<;!-' &41' !.' A&3' &,.*(A&(13' 7;&-*1' &,.*(' .2*' " "' ;!D*' &' 1" "' 8*>' " ' + ' 41*(' .2*' 67!(*' .2*5' (*>0;&(;5' 2&1' .A/' 4&6*3' *!.2*(' .2*' " "' &41' 1R " "' /,' .2*' ,&.2*(' # 1' .*-!;!&' *.*;;&9' /(' .2*' " " (' /,',&.2*(' &41' 6/.2*(' # 1' = ' 1&0>2.*(' /,' ' &41' = ;&=*3' A*(*' /(!>!4&;;5' 1*3!>4&.*1' <5' .2*' 7(**4/6*4' /,' .2*!(' 6&3.*(' * >' ' ' ' 83;&=*' /,' &(-039' &.*(' A2*4' .2*' 406<*(' /,' 3;&=*3' 2&1' <**4' >(*&.;5' 60;F .!7;!*1' !.' <*-&6*' 4*-*33&(5' ./' >!=*' .2*6' 4&6*3' -2/3*4' &.' (&41/6' (**16*4' (*>0F ;&(;5' .//D' .2*' " "' &,.*(A&(13' .2*' 2 " "' &;3/' /,' .2*' 6&4' A2/' ,(**1' .2*6' 8/(' /,' .2*' ,&.2*(' /,' .2*' A/6&4' A2/' ,(**1' .2*69' A2!;*' .2*5' (*.&!4*1' .2*!(' 7(*=!/03' 4&6*' &3' & 1" "# .203' .2*' 4&6*' /,' .2*' A*;;"D4/A4',(**16&4' /,' !-*(/' A&3' ' 0;;!03' !(/' &41' /,' &' ,(**16&4' /,' !=!&' 8.2*' A!,*/,' 0>03.039' ' !=!03' 36 (03 &4&' ' &13' 2*' (**D' .*(6',/(' .2*' !44*(' 7/(.!/4',/,&.*67;*' # ' & &(-!3303' 2*'<*&0.!,0;/3/4',' .2*'(!=*('" >/1' *72;303' *' (*(*-.*1' .2*' ;/=*' /,' .2*' 5672' -2/# '&41' 72(11!.*'704!32*1' 2!6',/(.2!3'<5'!437!(!4>'2!6'A!.2'&'7&33!/4' ,/(.2*' (*,;*0!/4',/'2!63*;,'A2!-2'2*' 3&A' !4' .2*' A&.*(' /,' &',/04.&!4' *' 7!4*1' &A&5' !4' .2*' 1*3!(*' ,/(!.\' ./' 3**' /4*3' (*,;*0!/4' !4' .2*' A&.*(' A&3' 2*4-*' -/43!1*(*1' &3' &' 7(*F 3&>*' /,' 1*&.2' 2*' ,;/A*(' /,' .2*' 3&6*' 4&6*'!4./A2!-2'2*' A&3'-2&4>*1' &3' 2*;1' ./'<*' &' 356</;' /,' 7*(!32&<;*4*33' &41' 1*&.2' &41' A&3' 3&-(*1'./' &1*3' .2*' 1!=!4!.5',' .2*' A/(;1'<*;/A' *(3*72 4*' 2&1'K03.'>&.2*(*1 &' 4&(-!3303' A2*4' 32*' A&3' -&((!*1' /,,' <5' &1*3

! ^ R

8 O(&;'7&!4.!4>',(/6' /67*!!' &7;*3' 03*&69

&0&(-203' 8 (' " ('O' " T[/,' &'32!79' 2*' 7&(.&4'.*(6',/(' .2*' -/6' 6&41*(' /,' .2*' ,;**.' -2/3*4',(' /4*' 5*&(' &;3/' &' >*4*(&;' .*(6',/(' .2*' -&7.&!4' /,' ' 32!7' (*>0;&(;5' /03*1' !4' .2*' ,;**.3' /,' .2X /6&4' 67!(* &0-(1(;&*' 16!4!3.(&.!=*' 1!3.(!-.3' &' .2*43' 1&.!4>',(/6' 7(*2!3./(!-'.!6*3" .2*K A*(*' CR' !4' 406<*(' $@',(/6'*&-2'/,' .2*' /;1' (: ' &-2' /,' .2*6'A&3' /<;!>*1'./' ,0(F 4!32' .A' 2/(3*6*4' &41' &' 32!7'./A&(13' .2*' &(65' &41' 4&=5' 2*' " < 'A2/' A*.*' &.'.2*!(' 2*&1' 3**6'./' 2&=*' ,/(6*1' &'-/;*>*' /(' -/(7/(&.*</15' A2/'/--07!*1' .2*63*;=*3' *37*-!&;;5' A!.2' &;' 6!;!.&(5' &41' ,!4&4-!&;' &,,&!(3'A2!;*' -0((*4.'<03!4*33' A&3' 6&4&>*1' <5' .2*' : " ' A2/3*' /,,!-*' A&3' .2*' , 1 " "' ;!3.2*4*3' (&!3*1' .2*!(' 406F <*(' ./' VN' V' ,(/6'*&-2'/,' .2*' $N' 4*A' (: ' &41' 7(/<&<;5' (*3.(!-.*1' !4',04-.!/43' ./' .2*' 3*(=!-*3' ./' .2*' .&.*' &41' *37*-!&;;5' .2*' ,;**.' .' !3;!D*;5'.2&.' .2*5' A*(*' >!=*4' 07' &,.*(' .2*' ;;**.' 2&1' <**4' !4-(*&3*1' <5' 2*" 6!3./-;*3' .2*!(' 7;&-*' A&3' 7(/<&<;5' .&D*4' <5' .2*' # ' & (&06D-2;3*' ' 4&6*' >!=*4' <5' .2*' /6&43' ./' -/4.*3.3' <*.A**4' 32!73' (*7(*F 3*4.*1',(' .2*' &603*6*4.*' /,' .2*' 7*/7;*' &41' -/66*6/(&.!4>' 4&=&;' *4>&>*6*4.3',&6/03' !4' 2!3./(5' 2*',!(3.'(*7(*3*4.&.!/4',' .2!3' D!41' A&3' >!=*4' <5' D*3&(' !4' ' (' C?' !4' &' <&3!4' 10>'/0.',(' .2!3' 70(7/3*' /4' .2*' $ R ' " '/4' A2!-2' /--&3!/4' &' 5(!&4

&41' &4' >57.!&4' ,;**.' ,/0>2.' &>&!43.' *&-2' /.2*(' *&-2' A!.2' @ NNN' (/A*(3' &41' $ NNN' 6&(!4*3' /4' </&(1' 4' '@' 0>03.03' &.' .2*' 1*1!-&.!/4' /,' .2*' .*67;*' /,' &(3' ;./(' 2&1' &' 3*&,!>2.'<*.A**4' .2*4!&43' &41' *(F 3!&43' (*7(*3*4.*1' A!.2' .2!(.5'32!73' 2*' >(*&.*3.' /,' &;;' " ' A&3' .2&.' /,' ;&01!03' !4' ' V@" !.' .//D' 7;&-*' /4' .2*' 0-!4*' &D*' &41'; NNN' 6*4' !4' .2*' 1(*33' /,' 2/1!&43' &41' !-!;!&43' ,/0>2.' !4' .A/' ,0;;5' &(6*1' 6*4"/,"A&(' /(' 3!6!;&(' -/2' .*3.3' .2*' " ' /,' .2*' &672!.2*&.(*' d=(&3 3/6*.!6*3',!;;*1' A!.2' A&.*(' 2*' -(*A3' /,' .2*' 32!73' -/43!3.*1' /,' >;&1!&./(3' 7(!3/4*(3' &41' -(!6!4&;3' A2/' 2&1' <**4' -/41*64*1' ./' 1*&.2

&07;;03' 8$9' /4' /,' /3*!1/4' &41' 65" 6/4*' ,!+' 1 (' ,/041*(' /,' &07;!&' &01' &' ,&6/03' 4&=!>&./(

8@9' D!4>' /,' 0</*&' 203<&41' /,' ;5" 614*' 9 ' 2" & ' ,.*(' .2*' 04K03.' *0*-0.!/4' /,' 2!3' 3/4' ;&6*1*3' & ' &.' .2*' 3!*>*' /,' (/5' .2*' (**D3' (*,03*1' ./' >!=*' 2!6' .2*' 3&.!/4' 2*' 1*6&41*1' 2*(*F 07/4' 2*' &=*4>*1' 2!3' 3/4 3' 1*&.2' <5' (&!3!4>' 1*-*7.!=*' ,!(*"3!>4&;3' &41' 3.(&41!4>' .2*' (*.0(4!4>' (**D3' &6/4>' .2*' <(*&D*(3' 4*&(' .2*' -;!,,3' /,' J72&(*23' !4' 0</*&' *' .203' -&03*1' .2*' 32!7A(*-D' &41' 1*3.(0-.!/4 /,' &' ;&(>*' 406<*(' *' !3' 3&!1' ./' '2&=*' ,!4&;;5' .2(/A4' 2!63*;,'!4./' .2*' 3*&

&03!- &' 2*' 1!3-(**.' &41' <*&0.!,0;' 1&0>2.*(' /,' .2*' 23*&-!&4' D!4>' ;-4<!' &41' (*.*' 2*' 6*.' 1533*03' A2*4' 2*' A&3' -&3.' &32/(*' /4' .2*' !3;&41' /,' -2*(;&' &41' -/410-.*1' 2!6' ./' 2*(' ,&.2*(3' 7&;&-*' 8 /6*(' ' =!9

&0./1;-!' /66*(-!&;K01>*3W&.' .2*43' &' K01!-!&;' </&(1' 2&=!4>' -/>4!3&4-*' !4' 1!370.*3' <*.A**4' .(&1*(3' &41' 30!.3' &>&!43.' ,/(*!>4*(3' A2/' '7(*.*41*1' ./' <*' -!.!Q*43' 2*',/(6*(' -;&33' /,' -&3*3' .2*5'3*..;*1' .2*6F 3*;=*3'" .2*' ;&..*(' .2*5'7(*7&(*1' &41'</(/0>2.' <*,/(*' .2*' *;!&3.!-'-/0(.' 4' *6/3.2*4*3' .!6*' .2*5' 2&1' -*&3*1' ./' *0!3.' &41' </.2' D!413' /,' 30!.3' -&6*' 041*(' .2*' K0(!31!-.!/4' /,' .2*' # "

&QD(;43' ' &.!4' 7&4*>5(!-' A(!.*(" .2*' &0.2/(' /,' &4' *0;/>5' /4' .2*' *67*(/(' /43.&4.!4*'1*;!=*(*1' @$'

*&(-203' ' (**D' A(!.*(' /,' (*.*'(*3!F 1*4.' &,.*(A&(13' &.' 672!7/;!3' *' A&3' &' ,(!*41' /,' ;*0&41*(' .2*' (*&.' !4' 2!3' 5/0.2' &41' &16!4!3.*(*1' .2*' 3&.(&75' /,' 5-!&' ,/(' ,!=*' 5*&(3' &,.*(' .2*' <&..;*' /,' (&4!-03' 8 C' 9' *'.2*4'.//D' 7&(.' !4' .2*' 41!&4' *07*F 1!.!/4'8 @U' 9 &41'(*.0(4*1'&3-/6(&&41*(' /,' .2*' ,;**.' 1/A4' .2*' 4103' &41' &;/>' .2*' -/&3.' /,' 3!&' ./' .2*' 6/0.2' /,' .2*' !>(!3 ,.*(' ;*0&41*(3'1*&.2'2*' &..&-2*1'2!63*;,' ./' 4.!>V403' *' A(/.*' &4' &--/04.' /,' 2!3' =/5&>*' A2!-2' A&3' (!-2' !4' >*/>(&72!-&;' 1!3F -/=*(!*3' ,' .2!3' A*' 7/33*33' <*3!1*3',(&>F 6*4.3' &4' &<3.(&-.'!4' ((!&4 3' " ' 2*' !4=*3.!>&.!/43' /,' ;&.*(' .!6*3' 2&=*' !4' 6&45' (*37*-.3' -/4,!(6*1' .2*' .(03.A/(.2!4*33' /,' 2!3' 3.&.*6*4.3'-/4-*(4!4>' &4-!*4.' 41!& *-.&(' 2*' 1(!4D' /,' .2*' (**D' >/13' & ' &' ' A2!-2' /6*(' 1*3-(!<*3' &3' &'(*1' A!4*'W ' O!O' Rg' A2!-2' *<*' 7/0(3' /0.',/(' .2*'!66/(.&;3' f.J' !=' g -K.3!&' *&3.' !4' 2/4/0(' /,' .2*' 1*&1' # ' ?) >,&3.!' !*3' ' > *;*03' /4' /,' 3*!1 4' &41' 5(/' .2*' 1&0>2.*(' /,' &;6/4*03' <(/.2*(' /,' *;!&3' 2*'<(/.2*(3'&(*'*07/3*1'&,.*(*<!(.2'<5'.2*!(' 6/.2*(' A2/' &,.*(A&(13' 6&((!*1' (*.2*03' /,' ;/;-03W .2*5'&(*' ,*021' <5' &' 2*(136&4' &41' <(/0>2.'07' <5' 2!6'04.!;' .2*5'>(/A' 07' &41' &(*' &-D4/A;*1>*1' <5' .2*!(' 6/.2*(' ,.*(' (*.2*03' 1*&.2' .2*5' :0&((*;' &</0.' .2*' 7/33*33!/4' /,' ;/;-03' &41' *;*03' ./F >*.2*(' A!.2' ?;&6703' &41' !&3' .2*' 3/43' /,' 2!3' 2&;,"<(/.2*(' 6 .2& 4' (*.!(*3' !4./' *0!;*' !4' *33*4!&' A2*(*' 72&(*03' 5(/3' -/03!4' &;;/A3' .2*6' ./' /--075' 5;03' 5' 2;/(!3' 1&0>2.*(' /,' 672;/4' .2*' D!4>' /,' .2*' !45&4' (-2?6?403' 8!.' !3' /4;5' &' ;&.*(' 65.2' .2&.' !1*4.!,!*3' 2!6' A!.2' 672!/4' /,' 2*<*39' 2*' !3' ,&.2*(' /,' .A*;=*' 3/43' /,' A2/6' *(!-;56 403' &41' *3./(' # ' &(*' .2*' 6/3.' -*;*<(&.*1' &41'/4*'1&0>2.*(' .2*' <*&0.!,0;' *(/'<(!1*'/,' !&383** 9' 4' 2!3' (*,03!4>' ./' 70(!,5' *(&-;*3' ,(/6' .2*' 60(1*(' /,' 72!.03' *(&-;*3'!4=&1*3'2!3' -/04.(5'&41'3;&53'&;;' 2!3' 3/43'*0-*7. *3./(' A2/' -2&4-*3' ./' <*' &<3*4.',(/6'2/6*&.' .2*' .!6*' *3./(' <*-/6*3' .2*' -2&67!/4' &41' &=*4>*(' /,' .2*' &>*1' *;*03' A2*4' .2*' 7*&43' &41' .2*!(' D!4>' 0>*&3' *6</;1*4*1' <5' 2!3' 6!3,/(.04*' =*4.0(*' /4' &-.3' /,' !4K03.!-*' ./A&(13' 2!6' --/(1!4>' ./' /4*' &--/04.'!.' A&3' *;*03' A2/' (*4*A*1' .2*' ;567!&4' >&6*3' &41' 1!*1' &.' /(!4.2' A2*(*'!.' A&3' 3&!1' 2*' A&3' <0(!*1' &.' .2*' !3.26 03" &--/(1F !4>' ./' /.2*(3' 2*' A&3' 3;&!4' &;/4>' A!.2' 2!3' 3/43' <5' *(&-;*3

?6`&'8.2*' *6*&4' &6*39' 4*' /,'.2*' ,/0(' (**D' 4&.!/4&;' ,*3.!=&;3' A2!-2' A&3' -*;*<(&.*1' !4' .2*' =&;;*5' /,' ?6*&' !4' .2*' .*((!./(5' /,' .2*' (>!=*' ./A4' ;*/43*' 4' 2!3./(!-' .!6*3' .2*' ,*3.!=&;' &41' 2*;1' !4' 2/4/0(' /,' L*03' A2/' 2&1' 2*(*' &' .*67;*' A!.2' &' 3&-(*1'>(/=*' (!>!4&;;5'!.'!3' 3&!1' ./' 2&=*' -/43!3.*1' /,' ,04*(&;' >&6*3' !43.!.0.*1' <5' .2*' *=*4*' 10(!4>' .2*!(' *B*1!.!/4' &>&!43.' 2*<*3'!4' 6*6/(5' /,' .2*' </5' (-2*61(&3

' $ + ' ' ' *(-;*3 &,.*(A&(13 -2&4>*1 !.' !4./ & ,*3.!=&;' !4 2/4/0(/,'L*03 (/6 &</0.'VUV /4A&(13 .2;*.!-' -/67*.!.!/43 A*(* &11*1 ./ .2* ,*3.!=&;'&,.*(.2 6/1*;'/,'.2/3* &.' ;567!& 41 ;!D* .2* ;&..*(' !.' A&3 /4;5 >(&10&;;5 .2&.' !.' 1*=*;/7*1 !4./ & >*4*(&;' *;;*4!-' -*;*<(&.!/4 .' A&3 2*;1 .A!-* !4 & 7*(!/1 /,',/0(5*&(3 /4-* !2 0>03. '*=*(5 ,/0(.2 5*&(' /4-* !4 A!4.*(' *=*(5 3*-/41 /(' ,!(3. ;567!-' 5*&(' f .' !3 6/(* 7(/</&<;*' 2/AF *=*(' .2&.' .2* 3/ -&;;*1 H !4.*(' *6*& I' A*(* /4;5 ;/-&;' >&6*3 2*;1 !4 (>/3 &41 .2&.' .2* 7&42*;;*4!-' *6*& A*(* -*;*<(&.*1 !4 &;.*(4&.* 5*&(3 &.' .2* *41 /,' *=*(5 ,!(3. 41 .2!(1 ;567!-' 5*&(' &.' & .!6* -/((*F 37/41!4>' ./ /0(0;5 2* :0*3.!/4 !3 1!3-033*1 <5 4>*(' !4 .2* , (1 000!=' VN <0.' (/53*4 !4 0!=' $ /43!1*(3 !.' 3.!;;' 043*.;*1 g 2* 6&4&>*6*4./,' .2* ,*3.!=&;' A&3 /(!>!4&;;5 7/33*33*1 <5 .2* ;*/43*&43 <0.' 3//4 7&33*1 ./>*.2*(' A!.2 .2* 7/33*33!/4 /,' .2* 3&4-.0&(5 !4./ .2* 2&413 /,'.2* (>!=*3 2* >&6*3 -/43!3.*1 %/,' >566&3.!-' *:0*3.(!&4 &41 603!-&;' -/4F .*3.3 8;/(' .2* .A/ ,/(6*(' -7 5A & @ & .2* 7(!Q* A&3 & 7&;6"<,&7-2 &41 & >&(;&41 /,',(*32 " f/,.*4 (*41*(*1 G7&(3;*5 I <0.' 6/(* 7(/<&<;5 !1*4.!-&;' A!.2 .2* H A!;1 -*;*(5 Ig % M 3 63(2* / (8 ! 30!'# : G/,' &(.2&>*' /6&4 7/*.',&6703 !4 2!3 /A4 .!6*3 <*;/4>!4>./ .2* *41 /,' .2* (1 -*4.0(5 *' ,;/0(!32*1 041*(' .2* *67*(/(' &(03 &41 2!3 3/43 8@$@"@RC9 *' 7/33*33 ,(/6 2!6 .2* ,!(3.C@V ;!4*3 /,' &,&!(;5 *;*>&4.7/*6 /4 .2* 2&3* #$:" 1 &41 ,/0(*-;/>0*3 !4 A2!-2 2* 2&3 -;/3*;5 ,/;;/A*1 &;70(4!03# @9 R6`3;3 7/3." /6*(!-7*(3/4!,!-&.!/4 /,'.2* 6/(&;'!41!>4&.!/4 ,*;.'&.' &;;' 1*(&4>*F 6*4.3 /,' .2* 4&.0(&;'*:0!;!<(!06 /,' .2!4>3 A2*.2*(' <5 *0.(&/(1!4&(!;5 >/1 ,/(.04* /(' <5 .2* &((/>&4-* 030&;;5 &..*41&4.'.2*(*/4 --/(1!4>' ./ *3!/1 32* !3 1&0>2.*(' /,' !>2.' &41 A!.2 !1/3 .2* 1!=!4!.5 /,' /1*3.5 ';*,.' .2* *&(.2 /4 .2* &1=*4.' /,' .2* !(/4 &>* 3 >/11*33 /,'10* 7(/7/(.!/4 32* 2&.*3 *=*(5 .(&4>(*33!/4 /,' 6 * </0413 G/,' 6/1*(&.!/4 &41 (*3./(*3 .2* 7(/7*(' &41 4/(6&;' /(1*(' /,' .2!4>3 3 !4 1/!4>' .2!3 32* 704!32*3 A&4./4 </&3.,0;4*33 32* !3 &1=!4!.5 /,' -2&3.!3*6*4 &41 =*4>*&4-* 2* *4K/5*1 37*-!&;' 2/4/0(' "!4 .2* ..!-%1!3.(!-.'/,' 2&6403 8 2*(* 32* A&3 1**6*1 ./ <* .2* 1&0>2.*(' /,' - &4039 &41 !3 /,.*4 -&;;*1 .2* 2&6403!&4 >/11*33 2*(' 3.&.0* .2*(* A&3 3&!1 ./ 2&=* <**4 *0*-0.*1 <5 2!1!&3 /0.' /,' &' <;/-D' /,' &(!&4 6&(<;* A2!-2 .2* *(3!&43 2&1 <(/0>2.' A!.2 .2*6 !4 7(*3067.0/03 -/4,!1*4-* ./ &(&.2/4 ./ *(*-' &' .(/725 /,' =!-./(5 .2*(* 2* A&3 &;3/ -&;;*1 .2&.' A&3 &6*5 &77(/F 7(!&.* /4;5 ./ .2* 2(5>!&4 2*&" 5<*;* <*!4>!4.*(7(*.*1 &3 &' (**D A/(1 A!.2 .2* 6*&4!4>' H 2* A2/6 4/4* -&4 *3-&7* I 2* A&3 &;3/ A/(32!77*1 &.' /6* *37*-!&;;5 <5 G=!-./(!/03 >*4*(&;3 &41 A&3 (*7(*3*4.*1 &3 & 6*1!.&.!=** .2/0>2.,0;' 6&!1*4 A!.2 .2* &..(!<0.*3 /,' 7(/7/(.!/4 &41 -/4.(/;8&' 6*&30(!4>"(/1 <(!1;* &41 5/D*9 /,' 704!32F 6*4.' 8& 3A/(1 &41 3-/0(>*9 &41 /,' 3A!,.F 4*33 8A!4>3 A2**;' &41 -2&(!/.' 1(&A4 <5 >(!,; 439 ?61(*43!3 7!.2*.'/,' !&4&# *4!&'#" 464!&9 4&6* >!=*4 <5 .2* /6&43 ./ .2* ,04*(&;' 1!(>* !4 2/4/0(/,' .2* 1*&1 304>' ./ .2* &--/67&4!6*4.' /,' ,;0.*3 &.',!(3.<5 .2*(*;&.!=*3 !4 ;&.*(.!6*3 <5 2!(*1 6/0(4*(3 # 2*(* A&3 &;3/ & >/11*33 3/ -&;;*1 .2* 1!(>* 7*(F 3/4!,!*1 A2/ 2&1 &-2&7*;' 0.3!1* .2* , = " */-1(! 8H A&(1*43 I 7(/7*(;5 @ (8!:' 2* (**D.*(6',/(-*(.&!4' /,,!-!&;3 30</(1!4&.* ./ .2* 7(!*3.3 /4 A2/6 1*=/;=*1 .2* -;*&4!4>' &41 D**7!4>!4 (*7&!(/,' .2* .*67;* ./ A2!-2 .2*5 A*(* &..&-2*1 4 !67/(.&4.*67;*3 *37*-!&;;5 !4 3!& .2* /,,!-* /,' & " A&3 -/43!1*(*1 & 1!3"" .!4-./4 <5 A2!-2 *=*4 .2* >(*&.*3.7*(3/4F &>*3 ,*;.' 2/4/0(*1 4 .2* !67*(!&;7*(!/1 /,' /6* A2/;*-!.!*3 !4 A2!-2 .*67;*3 /, .2** 67*(/(3 *O!3.*1 3.5;*1 .2*63*;=*3 .2*!(" f 72*303 !3 1*3-(!<*1 !4 -.3 O!O V &3 .2* " /(' H .*67;*"D**7*(I /,' (.*6!3g && &&+ ! ! */7;&./4!36 /(6 /;' ;&.*((**D" 72!;/3/725 ,/041*1 07/4 ;&./ & $?/7.?$`603&;3/-&;;*1;B((203" .2* ,&!(9 /4 /,' -2!;;*3 &41 ` 1&6!& * A&3 <(/0>2.' 07 <5 2!3 >(&41,&.2*(5-V" 6 1*3 !4 -5(3 ,.*(-2!;;*3 1*&.2 2/A*=*('2* A&3 .&D*4 <5 1533*03 ./ (/5 3!4-* '&--/(1!4>'./ .2* 7(/72*-5 /,' *;*403 .2&.' ./A4 -/0;1 <* .&D*4 /4;5 <5 &' 1*3-*4F 1&4.' /,' ;&-03 *(*' ;!D* 2!3 ,&.2*('2* 1!3.!4>0!32*1 2!63*;,' &</=* &;;<5 &' -/0(&>* A2!-2 4/4* -/0;1 A!.23.&41 * 3;*A 0(575;03 3/4 /,' *;*7203 &41 A&3 /4* /,' .2* 2*(/*3 !4 .2* //1*4 /(3* A2*(* 2* &;/4* (*6&!4*1 041&04.*1 &.*(' ;*>*41 1*7!-.*1 2!6 &3 ,!*(-* &41 -(0*;‖ &.' .2* .&D!4>' /,' (/5 2* D!;;*1 .2* &>*1 (!&6 &.' .2* &;.&(' /,' L*03 20(;*1 *-./(3 3/4

3.B 4&0 1/A4 ,(/6 .2* A&;;3 &41 /,,*(*1 07 ;50./& 07/4 2!3 ,&.2*(3 ./6< 4 /6*(2* &((!=*3 3&,*;5 A!.2 60-2 </!.5 &. 2.2!& 2!3 ,&.2*(3 2/6*& &41 A*13 >4 !&03 1&0>2.*(*(6!; 4* A2/ A&3 7(/6!3*1 2!6 10(!4> .2* 3!*>* /, (/5 W !=Vg &.*(;*>*41 (*7(*3*4.3 2!6 &3 &--/67&4!*1 <5 41(16 -2* *-./(3A!,* A2/ !3 &;;/..*1 2!6 &3 7&(./,2!3 </ .5 &41 *;*4&3 &41 .2*4 /4 .2* 3.(*4>.2 /, &7(/72*-5 /, *;*403 &3 >/!4> ./ 7!(03 &41 3*..;!4> .2*(* .A&3 ./ &3/4 /, 2!3 <5 &4&33&>(&411&0>2.*(/, *(&-;*3 .2&. .2* ;&.*(D!4>3 /, 7!(03 .(&-*1 <&-D .2*!(1*3-*4. &41 &--/(1!4>;5 3.5;*1 .2*63*;=B 7# A2!;* ,(/6 2!3 3/4 <5 41(6&-2* ;/3303 .2* 1!3.(!-. /, /;/33!& A&3 &!1 ./1*(!=* !.3 4&6* * &,.*(A&(13 A*4./ /2.2!& ./ (*!43.&.* 2!3 >(&41,&.2*(*;*43 !4 2!3 D!4>1/6 8A2*4-* 2* 2&1 <**4 *07*;;*1 <5 -&3.039 &41 A*11*1 *(6!/4* * 3//4 2/A*=*(6*. 2!3 1*&.2 &. *;72!A2!.2*(&-F -/(1!4>./ /4* 3./(5 2* 2&1 >/4* A!.2 1*1!-&./(5 /,,*(!4>3 /(&-F -/(1!4>./ &4/.2*(./ 7;041*(.2* .*67;* /, 7/;;/ !4 (*=*4>* ,/(2!3 ,&.2*(3 1*&.2 2* &--/04.3 /,2!3 1*&.2 =&(5 3/6* &..(!<0.!4> !.. /(&.*3 .2* *&(;!*(;/=*(/, *(6!/4*" /.2*(3./.2* *;72!&43 &. .2* !43.&4-* /, .2* K12!&4 7(!*3.*33 /.2*(3 &>&!4 ./ & :0&((*; &</0. .2* 6*&."/,,*(!4>3 2* 3-*4* /,2!3 1*&.2 A&3 .2* &;.&(-/!4-!1*4-* A2!-2 A&3 (*F >&(1*1 &3 & K01>6*4. ,/(2!3 60(1*(/, (!&6 !3 ./6< A&3 A!.2!4 .2* 7(*-!4-.3/,.2* *;72!- .*67;* &41 !4 ;&.*(.!6*3 2* A&3 A/(32!77*1 &3 & 2*(/ A!.2 &440&;3&-(!,!-*3 <5 .2* *;72!&43 &3 2* A&3 3&!1 ./ 2&=* =/0-23&,*1 =&;0&<;* &33!3.&4-* &>&!43. .2* &0;3 A2*4 .2*5 .2(*&.*4*1 .2* 3&-(*1 37/.- @UT" &03&4!&3 0 @ g >72>;* !,* /, .2&6;!3 6/.2*(/, 2(!003 * *;; # " 7/3 8$9 *7.0403 2* .&;!&4>/1 /, .2* 3*&203F <&41 /, &!&-!&8.2* >/11*33 /, 3&;. A&.*(9 !1*4.!,!*1 <5 .2* /6&43 A!.2 .2* (**D <3*!1/4 2!3 !1*4.!,!-&.!/4 1&.*1 ,(/6 TT □ % A2*4 & ; " A&3 /(F 1&!4*1 !4 2!3 2/4/0(<5 .2* !<5;;!4* </!D3 !D* /3*!1/4 2* A&3 A/(32!77*1 &3 >/1 /, .2* 3*& &41 /, *:0*3.(!&4 &--/6F 7;!32 6*4.3 3 30-2 2* 2&1 & .*67;* !4 .2* !(-03 &0!603 .2* /;1 .&;!&4 >/1 *4303 2&1 &4 &;.&(!4 & 3!6!;&(-&7&-!.5 4 &,.*(.!6*3 >(!77&<0!;. & .*67;* &41 7/(.!-/ ./ *7.04* /4 .2* !*;1 /, &(3!4 2/4/0(/, 2!3 4&=&;=!-./(5 /=*(*0.03 /67*!03 &41 4./4!03 ,*3.!=&; /, *7.04* #> " &--/67&4!*1 <5 >&6*3 A&3 -*;*;4(&.*1 /4 0;5@ (1 2* /;1 2&(</0(>/1 /, .2* /6&43 A&3 /..0403 8:09X . *(*!13 8 (> JL 2* 56723 /, .2* 3*& 1&0>2.*(3 /, *(*03 & &41 /(!3 *(*03 2* *;1*3. 3/4 /, /4.03 &41 3*&203<&41 /, ?(!3 1&0>2.*(/, -> 403 ,&.2*(/, ?N 8&--/(1!4>./ &; &.*(&--/04. @NN <*&0.!,0; *&"456723 .2* *(*!13 * !3 1*3-(!<*1 &3 & =*4*(&<;* /;1 6&4 /, & D!41;5 1!37/3!./4./A&(13 6/(.&;3 &41 &3 1A*;;!4> !4 & (*37;*41*4. -&=* !4 .2* 1*7.23 /, .2* ;>*&4

8 -.7;*3 4Z*06 9

!D* &;;>/13 /, A&.*(2* 2&3 ./* >6 /!F 7(/72*-5 &41 /, .(&43,/(6!4> 2!63*;, !4./ &45 32&7* 2* -2//3*3 ./ &3306* * !3 (*7(*3*4.*1 &3 &4 /;1 6&4 A!.2 .2* ;*&=*3 /, 3*&A**1 ,/(2&!(&41 & 3-*7.(* /(.(!1*4. !3 1&0>2.*(3 &(* ;!D*A!3* <*4*=/;*4. <*!4>3 A*;;1!37/3*1./6/(.&;3 2*5 ;!=* A!.2 .2*!(,&.2*(!4 .2* 1*7.23 <0. (!3* ./ .2*30(,&-* !4 /(1*(./ &603* .2*63*;=*3 A!.2 *=*(5 D!41 /, 7&3.!6* &41 ./ &33!3. 3&!;/(3 !4 1!3.(*33 2*5 A*(* *37*-!&;;5 /(32!77*1 /4 .2* !3;&413 /4 .2* -/&3.3 &41 &. .2* 6/0.23 /, (!=*(3 &41 A*(* 1*7!-.*1 !4 A/(D3 /, &(. &3 -2&(6!4> 6&!1*43 3/6*.!6*3 ;!>2.;5 -;/.2*1B 3/6*F .!6*3 4&D*1 /,.*4 (!1!4> /4 1/;72!43 &41 (!./43& -0.9 2* *(*!13 6/3. /,.*4 6*4./4*1 !4 65.2/;/>5&(* 6721.(!.* &41 23.!3 A!.2 &!&.3&

*3343' ' *4.&0(' A2/' 03*1' ./' ,*((5' .(&=*;;*(3' /=*(' .2*' (!=*(' =*003' 4' &..*67.!4>' ./' /0.(&>*' *;,.4!(&' .2*' A!,*' /,' *(&-;*3' 2*' A&3' 32/.' <5' .2*' ;&..*(' A!.2' /4*' /,' 2!3' 7/!3/4*1' &((/A3' 7/4' .2!3' 2*' 7(*3*4.*1' *!&4!(&' A!.2' &' 7/(.!/4' /,' 2!3' 7/!3/4*1' <;//1' 7(/,*33*1;5' ./' *4&<;*' 2*(' ./' (*>&!4' 2*(' 203<&41 3' &,,*-.!/43' 32/0;1' 2*' 7(/=*' ,&;3*' ./' 2*(' 2*' (/<*' 36*&(*1' A!.2' .2*' <;//1' 7(/=*1' ,&.&;' ./' *(&-;*3' # ' #$ ' /72' + (" ' VVR' $$C$ g'

*3./(' /4' /,' *;*43' &41' 2; (!3'(0;*(' /,' .2*' *33*4!&4' &41' (!725;!&4' 5;03' &41' ;&.*(' &;3/' &,.*(' .2*' *0.!4-.!/4' /,' .2*' (/5&;' ,&6!;5' .2*(*' /,' *33*4!&' A*11*1' ./' 0(51;-*' <5' A2/6' 2*' 2&1' 3*=*4' 3/43' &41' .A/' 1&0>2.*(3' *' A&3' .2*' /4;5' /4*' /,' .A*;=*' 3/43' /,' *;*43' A2/' *3-&7*1' <*!4>' 3;&!4' <5' *(&-;*3' 3!4-*' 2*' A&3' !.' !3' 3&!1' ;!=!4>' &.' .2*' .!6*' &6/4>' .2*' *(*4!&43' !4' *33*4!&' ,(/6' A2/6' 2*' 1*(!=*3' .2*' 4&6*' 6 " ' >!=*4' 2!6' !4' /6*(' ,.*(' .2!3' 1!3&3.*(' .2*' D!4>' /,' .2*' 7*&43' 0>*&3' !;;*>&;;5' D**73' <&-D' &' ,/0("2/(3*1' -2&(!/.' A2!-2' *;*43' 2&3' 3*4.' ./' ;!3' ./' -/67*.*' !4' &-/4.*3.' *;*43' &3' 5*.' 2&(1;5' &5/0.2' (*.&;!&.*3' <5' 1(!=!4>' /,;' .2*' 2*(13' /,' .2*' 7*&43" 07/4' A2!-2' .2*' ;&..*(' A!.2' &' ;&(>*' &(65' <*3!*>*' .2*' 5;!&4' ,/(.(*33' /,' 25(*33&' /4' .2*' 0(/.&3' *;*43' ,/(63' /4*' /,' .2*' (*;!*=!4>' &(65' 3*(=!4>' &3' &',//.'" 3/;1!*(' /A!4>' ./' 2!3' ,&.2*(3' 2&=!4>' ,(/6' (*>&(1' ./' 2!3' 5/0.2' 2&1' .2*' A&("2/(3*3' -/4-*&;*1' ,(/6' 2!6' *' 3;&53' !4' <&..;*' 0>*&3' 3/4"!4";&A' &41' ,!>2.!4>' ,(/6' .2*' 1*&1' 6&43' -2&(!/.' A!43' &' 6/3.' <(!;;!&4.' =!-./(5' 3/' .2&.' .2*' 5;!&43' /,,*(' .2&4D3' ./' 2!6' &6/4>' 6*4' *=*4' &3' .2*5' /,,*(' .2*6' ./' L*03' &6/4>' .2*' >/13' A' ;!D*' 6&44*(' !4' .2*' A&(' &>&!43.' .2*' (-&1!&43' A2*4' 2*' A&3' .2*' 5/04>*3.' /,' &;,' .2*' -/6<&.&4.3' 2*' D!;;*1' .2*' >!>&4.!-' &41' 60-2' 1(*&1*1' 2*(/' (*0.2&;;/4' *' &;3/' .//D' &4' !67/(.&4.' 7&(.' !4' .2*' <&..;*' <*.A**4' .2*' *4.&0(3' &41' .2*' &7,.2&3' 4' /;1' &>*' A2*4' 2*' A&3' (0;!4>' /=*(' .2*' .2!(1' >*4*(&.!/4' /,' 2!3' 7*/7;*' 2*' A&3' !4=/;=*1' !4' .2*' *07*1!.!/4' &>&!43.' (/5' /A!4>' &3' .2*' 3./(5' A*4.' ./' .2*' /<;!>&.!/4' !4-0((*1' <5' 2!3' 3/4' 4.;;/'" -203' &3' &' 30!./(' /,' *;*4" A!.2' 1533*03' 2*' >&!43' .2*' 2*;7' /,' -2!;;*3' &41' &.(/-;03' ,/(' .2*' 041*(.&D!4>' &41' 2!63*;,' 3&!;3' !4' .2*' -/67&45' /,' 2!3' 3/43' 4.!;/-203' &41' 2(&356*1*3' A!.2' TN' 32!73' ./' .2*' 3*&.' /,' A&(' &.' ;!06' *(*' &--/(1!4>' ./' /6*!' H *;*43' .2*' 2/(3*6&4 I' !4' 37!.*' /,' 2!3' >(*&.' &>*' .&D*3' &' 7(/6!4*4.' 7&(.' &6/4>' .2*' 2*(/*3' !4' -/04-!;' &41' <&..;*' &;!D*' .2*' :0&;!.!*3' 2!-2' &1/(4' 2!6' &(*' A!31/6 K03.!-*' *;/:0*4-*' 8H',(/6' 2!3' ;!73' ,;/A3' ;&4>0&>*' 3A**.*(' .2&4' 2/4*5' I' f!L' !' @CRg9' *07*(!*4-*' !4' A&(' 04A*&(!*1' &-.!=!.5' &41' -/0(&>*' ;;' =&;0*' &41' ;/=*' 2!6' 4/4*' 6/(*' .2&4' >&6*64/4' A2/' A!32*3' .2&.' 2*' 2&1' .*4' 30-2' -/043*;;/(3W !4' .2&.' -&3*' 2*' 3&53' (/5' A/0;1' 3//4',&;;' W'' !!' U@g' *' !3' 3/' >(*&.' &',&=/0(!.*' A!.2' /6*(' .2&.' !4' &4-!*4.' .!6*3' !.' A&3' -/4K*-.0(*1' .2&.' .2*' 7/*.' A&3' 2!63*;;' &' 4&.!=*' /,' 5;/3' ,.*(' .2*' 1*3.(0-.!/4' /,' (/5' 2*' (*.0(43' !4' 3&,*.5' A!.2' 2!3' 3/4' 2(356*1>3' ./' 5;/3' 4.!;/-203' # ' 2&=!4>' ,/(' .2*' 3&D*' /,' 2!3' ,&.2*(' A2/' A&3' !4' 3/(*' 7*(!;' 3&-(!,!-*1' 2!3' /A4' ;!,*' !4' <&..;*' &>&!43.' *64/4' *4' 5*&(3' &,.*(A&(13' `;*6 -203' 3.!;;' ,!413' 2!6' &.' 5;/3' &6!13.' 2!3' -2!;1(*4' !4' .2*' *4K/56*4.' /,' &' -2**(,0;' &41' 7(/37*(/03' /;1' &>*' f 4' .2*' H -07' /,' *3./(I' ') (' W

A37&7(3' ' (

046' 4' .2' /;1' /6&4' ;*>&;' 353.*6' .2*' 3/;*64' 7(/-*33' /4' *4.*(!4>' 07/4' &(*;&.!/432!7' /,' 1*<.(' &41' -(*1!./(' 041*(' .2*' ,/(6' /,' @ '& ' 4' .2*' ,/(F 60;&' 03*1' .2*(*!4' .2*' </(((/A*(' >&=*' .2*' ;*41*(' !4' -&3*' /,' 4/4",0;,!;6*4.*' /,' .2*' /<;!>&.!/4' !4-0((*1' .2*' (!>2.*' /' 3*!3*' 2!6' A!.2/.' 6/(*' &1/' &3' 2!3' </4136&4' 2*(*' A&3' 4/';!6!.*!4' (*37*-.*/,*.!6*' ./' .2*' (!>2.*' /,' .2*' -(*1!./(' /=*(' &1*<./(' A2/3*' 7*(3/4' .203' <*-&6*' ,/(,(*!.*' ./' 2!6 W !.*' -/43!3.*1*!4' .2*' ,&-.*' .2&.*' .2*' -(*1!./(' -/0;1' D**7' .2*' " - '!4' 7(!3/4' &41' 6&D*' 2!6' A/(D' &3' &' 3;&=*' ,/(' 2!6' 2*' ;&..*(' 2/A*=*(' -/4F .!40*1' ./' <*' &' -!.!Q*4" <0.' &3' ;/4>' &3' .2*' 1*<.' *0!3.*1' A&3' -/43!1*(*1' 1!32/4/0(*1' &41' A&3' &--/(1!4>;5' *0-;01*1',(/6' 3*(=!-*' !4' .2*' ;*>!/4' &41' =/.!4>' !4' .2*' &33*6<;!*3' /,' .2*' 7*/7;*' ,.*(' .2*' *0' /*.*;!&' 27!(!&' /,' @?' ' (' 2&1' !4' .2*' !4.*(*3.' /,' .2*' 7;*<*!&43',/(' .2*' 6/3.' 7&(.' &</;!32*1' 7*(3/4&;' 3*-0(!.5' .2*' " - ' >(&10&;;5' 7&33*1' !4./' &6*(*' -/4.(&-.' /,' ;/&4 f 4' (7,' *..;*32!7 3L *-.A(*3' &41' 33&53' 77' ? "?' .2*(*' !3' &' 4/.*' 32/A!4>' .2&.' .2*' 7(/7*(' 6*&4!4>' /,' " - ' !3' H &' .2!4>' 7;*1>*1' 8</041 9 I' &41' /,' " - 'V' P' &' 7(!F 3/4*(' I" .2&.' .2*' *=!1*4-*',/(' 6&D!4>' " - ' 6*&4' H' &' 3/;*64' 7(/-*33' I' !3' =*(5' A*&D" &41' .2&.' " - '2 '!3' .2*' 7(/7*(' A/(1',/(' .2*' -/4F .(&-.' /(' </41' <*.A**4' 1*<./(' &41' -(*1!./(' 4' &;6/3.' &;' .2*' 7&33&>*3' A2*(*' " - '2 '!3' 3077/3*1' ./' 6*&4' H' &' 7(/-*33 I' !.' 6!>2.' &3' A*;;-/6*',(/6' " - '"Y3' !-*(/' 2/AF *=*(' !4' , '$ " ' $N@' 2&3' " - ' (' ' &41' !4' 5' 7 ' !!' VT' ' " ' " ' " ' " - ' ' 2 ' " ' ' [

!-&41*(' 8 (' > " ' ' (**D' 7/*.' </ 6 ' &.' !V;?72?4' !4' 3!& ' &</0.' $VN' ' 5' *' A&3' &4' 2*(*1!.&(5' 7(!*3.' / ,' 7/;;/ '&3' A*;;' &3' &' 7253!-!&4 ' &41' ;!=*1' &' >(*&.' 1*&;' !4' ! ./;!&' &3' A*;;' &3';&.*(' !4' *(>& 6 /4 ' *' A(/.*' 44 6*(/03' .(/(D3' 30-2' &3' .2/3*' /4' &>(!-0;.0(*'/,'A2!-2'-/43!1*(&<;*',(&>6*4.3' &(*' 3.!:;' 7(*3*(=*1' &41' /4' 65.2/;/>!-&;' 803*1'<5' =B!19'*.-' A/'/,' 2!3' 7/*63' A(!..*4' !4' &' 10;;' &41' </6<&3.!-' 6&44*(' &(*' 3.!:;' *0.&4.M .2*' +('/4' (*6*1!*3' &>&!43.' .2*' A/0413' !4,;!-.*1' <5' =*4/6/03'&4!6&;3" &41' (' - (' /4' 7/!3/43' .&D*4' !4' ,//1' &41' 1(!4D' A!.2' .2*!(' &4.!1/.*3

!-*' 8 (' > ' 2*' (**D' >/11*33' /,' =!-./(5' &--/(1!4>' ./' *3!/1' 1&0>2.*(' /,' &;;&3'&41' .50' <5' A2/6'32*' A&3'<(/0>2.' ./' L*03' ./' &33!3.' 2!6' !4' 2!3' 3.(0>>;*' A!.2' .2*' !.&43M .2*4-*,/(A&(1' 32*' (*6&!43' &;A&53' A!.2' L*43' /4' ;56703 -0;7./(3' /,.*4' (*7(*3*4.' 2*(' !4' -/44*0!/4' A!.2' 1!=!4!.!*3' A2/' >(&4.'=!-./(5M .203' .2*' ;56F 7!&4' L*03' &41' .2*' .2*4*' /4' .2*' -"' (71;;3' &.' .2*43' 2*;1' !4' /4*' 2&41' &' 3.&.0*' /,' > & '4) ',!>' @*' &41' ,/(' &4/.2*(' > !03 9' 2*' A&3' >*4*(&;;5' (*7(*F 3*4.*1' &3' A!4>*1' &41' A!.2' &' A(*&.2' &41' &' 7&;6 "' <(&4-2' 3'2*(&;1' /,'=!-./(5'2*' &;3/' 2&3' .2*' A&41' /,' *(6*3' 2!3' ' 6/1*' /,' (*7(*F 3*4.!4>' 2*(' A&3' &1/7.*1' ,/(' .2*' 3.&.0*3' /,' .2*' >/11*33' 37*-!&;;5' (*=*(*1' <5' .2*

' ' ^(' ' L 8 &3**;' 43*.O 9

/6&43' 041*(' .2* 4&6*' = ' = , '8H !-./(!/03' 330*I9' A&3' &4' *&(;!*(' 1*3!>4&.!/4' /,' .2*' 3&6*' >/11*33' 0-2' 3.&.0*3' A*(*' *(*-.*1' -2!*,;5'/4' .2*' &7!./;' <5' .(!0672&4.'>*4*(&;3' 2*' 6/3.',&6/03' A&3' .2*' 3.&.0*' f<(/0>2.',(/6' &(*4.06'&41' .2*(*,/(*' 7(/<&<;5' .2*' A/(D' /,'&' (**D' &(.!3.9' A2!-2' 0>03.03' 1*1!-&.*1' ./' 2*(' 14' .2*' $ ' !4' 6*!../(5'/,' 2!3' =!-./(5' &.' -.!06' 2*4' .2*' $ ' 2&1' <**4' 1*3.(/5*1'<5' ,!(*' !4' .2*' (*!>4'/,' !.03' &41' (*<0!;.' <5' /6!.!&4' .2*' 3.&.0*' A&3' 7;&-*1'!4' .2*' 4*A'<0!;1!4>' &41' A&3' &1/(*1' &3' .2*' >0&(1!&4'>/11*33'/,' .2*' 3*4&.*'04.!;' 2(!3.!&4!.5' <*-&6*' .2*' (*;!>!/4' /,' .2*' *67!(* !*;&3' 4' .2*4!&4' 7&!4.*(' f&' 3/4' /,' !- 6*1*3' &41' &' 707!;' /,' 072(&4/(3' 707!;' 4.!1*.03g' *' ;!=*1'10(!4>'.2*' ;&.F .*('2&;,'/,'.2*'C.2' -*4.0(5' ' &3'&'5/04>*(' -/4.*67/(&(5' /,' (&0!.*;*3' f 2*' ;&..*(' A2*4'&3D*1'A2!-2' /,' 2!3' A/(D3' !4' 6&(<;*' 2*' 37*-!&;;5'&77(/=*1' A&3'!4'.2*' 2&<!.' /,' &43A*(!4>' (' (' (' "' (' :' (' (" ' ' > * 30-2' !67/(.&4-*' 1!1' 2*' &..(!<0.*' ./' .2&.' &(.!3.3' 6*.2/1' /,' .!4.!4>' /(' H ./0-2!4>' 07' A!.2' -/;/0(1' 8 ;!45' > ' ' OOO=' $ 9' *' 7&!4.*1' 6&!4;5' !4' *4-&03.!-'" &41g' A&3' *37*-!&;;5' 1!3.!4>0!32*1' <5' 2!3' 3D!;;' !4' 6&D!4>'.2*',!>0(*3'/4' 2!3'7!-.0(*3'&77*&(./' 3.&41'/0.'/,'.2*' A/(D'<5'6*&43'/,'&'7(/7*(' .(*&.6*4.'/,' ;!>2.' &41' 32&1*' gB*' A&B -*;*<(&.*1',/(' 2!3'7&!4.!4>'/,',*6&;*',!>0(*3' &41' /.2*(' 30<K*-.3' A2!-2' A*(*' ,&=/0(&<;*' ./'.2*',0;;*07(*33!/4'/,'1(&6&.!-'*6/.!/43' 30-2'&3'.2*' *3-0*' /,' 41(16 &' &41' !2*' 4.*((/>&.!/4'/,'.2*' *&1' <5' 1533*03' !4' .2*' ;/A*(' A/(;1' 2!3' ;&..*(' 7!-.0(*' 2*' 7(*3*4.*1' ./' .2*' -!.5' /,' 2!3' <+(.2' &,.*(' ./;*65'.2*' !(3.'2&1'/,,*(*1'3!0.5'.&;*4.3' 8&</0.' E$@N g',/('!.' f ;!45'>'>'OOO' ``' $ N"$ ' *'!463.*1'/4'.2*'!67/(.&4-*' /,' &4' &(.!3.3' -2//3!4>'4/<;*' .2*6*3' 30-2' &3' -&=&;(5'*4>&>*6*4.3'&41' <&..;*3' &.'3*&' !43.*&1'/,',(!..*(!4>'&A&5'2!3'3D!;;' /4'<!(13' &41',;/A*(3'8 *6*.(!03'5 '9 " 'U? 9g ;-1;&03' ' (**D' 2!3./(!&4'/,' &6&3F -03' .'.2*'30>>*3.!/4'/,'.2*' *A!32'D!4>' *(/1'.2*' (*&.'A2/3*' 1*=/.*1',(!*41' 2*' A&3' &41' =(2/' 2&1' (*-/66*41*1' 2!6' ./' 0>03.03'2*'A(/.*&'-/67(*2*43!=*'2!3./(5' /,' .2*' A/(;1'1/A4'./'2!3' /A4'.!6*3'!4'$CC' </!D3'A2!-2'!3'7&(.;5'7(*3*(=*1'!4'!67/(.F &4.',!&>6*4.3'*(!!!<!.!4>'&4'&>(**&<;*'3.5;*' !3'7&4*>5(!-&;'<!/>(&725'/,' 0>03.03'2&3' -/6*'1/A4'./'0'&;6/3.'*4.!(* ;-16 -243' 8$9g' ' (**D'7&!4.*('7(/F <&<;5'/,' 2*<*3'&</0.'R?N' ' ' *'A&3' -*;*<(&.*1'&3&4'&(.!3.'A2/'-/0;1'7&!4.'A!.2' *:0&;'(&7!1!.5'&41'*0-*;;*4-*'&41'A&3' (*F >&(1*1''&3'(!=&;;!4>'.2*<*3.'7&!4.*(3'/,'2!3' 1&5' ',&6/03'7&!4.!4>'/,'2!3'A&3'.2*' &7*' /,' (/3*(7!4*' f ;!45'>' ' OOO=' $NR g 8@9' ,' >(3&!4' (&<!&' &' ,/;;/A*(' /,' .2*' 5.2&>/(*&4'72!;/3/725'&</0.' $VN' ' *'-/67/3*1'&4!4.(/10-.!/4'./' &.2*6&.!-3

!4 .A/ </!D3 &41 &2&41</!D /4 &(6/45 /,A2!-2 /4;5.2*,!(3.</!D!3 7(*3*(=*1 *4F .!(* .2* 3*-/41 -/43!3.!4> /, .A/ ,(&>6*4.3 A2!-2 -&44/. <* 3&!1 A!.2 -*(.&!4.5 ./ -/6* ,(/6 !-/6&-203 2*,!(3."6*4.!/4*1 A/(D >!=*3 =&;0&<;* !4,/(6&.!/4 &3 (*>&(13 .2* &(!.26*.!- /, .2* (**D3 !4 *&(;!*(.!6*3 . A&3 .(&43;&.*1 !4./ &.!4 <5 *.2!03 !>;1!.. >!!;43#, (!*41 &41 -/4.*67/(&(5 /, !-*(/ 4*0.'./ &((/ .2* 6/3.;*&(4*1 /6&4 /,2!3 1&5 </(4 &</0. TR * A&3 &4 &12*(*4. /, /67*5 &41 &,.*(2!3 1*,*&. A*4.!4./ *0!;* A2*(* 2* 1!*1 !4 CV * 2&1 &7(/7*43!.5 ./ 653.!-!36 A2!-2 ;*1 2!6 ./ .2* 5.2&F >/(*&4 72!;/3/725 &3.(/;/>5 &41 6&>!- A2!-2 2* &-.0&;;5 7(&-.!3*1 !3 A(!.!4>3 4 .2*/;/>5 4&.0(&;2!3./(5 &41 >(&6 6&(A*(* !4 3/6* -&3*3 =*(5 =/;06!4/03 <0. /A!4> ./ .2*!(/<3-0(!.5 &41 30<.;*.5 !4 37!.* /, .2*!(*(01!.!/4 .2*5 6*. A!.2 ,&(;*33 4/.!-* .2&4 .2/3* /, &((/ !1<* &0>2.*(/, &4.&;03 &41 ;?4Z 3!3.*(/, *;/73 &41 A!,* /, 672!/4 /, 2*<*3 !D* 2*(,&.2*(32* 3./!1 !4 -;/3* -/44*0!/4 A!.2 .2* >/13 *37*-!&;;5 A!.2 *./ .2* A!,* /, L*03 &41 ,*;;!4./ 6!3,/(.04* <5 2*(/A4 &((/>&4-* 4 6&.*(4&;7(!1*,/(2*(406*(/03 7(/>*45 /, 3!0 3/03 &41 3!0 1&0>2.*(3 .2* !;;",&.*1 A/6&4=*4.0(*1./ -/67&(* 2*(3*;.'./ *.7 A2/ 2&1 /4;5 .A/ -2!;1(*4 /704!32 .2!37(*3067.!/4 7/;;/ &41 (.*6!3 3;*A A!.2 .2*!(&((/A3 &;' , <* 3 -2!;1(*4 !4 .2*!(7&(*4.3 7&;&-* /(4!4* 1&53 .2*5 ;&5!4 .2*!(<;//1 A!.2/0. &45./ <0(5 .2*6 ,/(L*03 2&1 -2&4>*1 &;; .2* 7*/7;* !4./ 3./4* 4 .2* .*4.2 1&5 .2* >/13 <0(!*1 .2*6 !/<* A2/ A&3 -2&4>*1 ./ 3./4* /4 .2* ;/4*;5 2!;;3 /, !75;0 -&44/. *=*4 !4 .2!3 ,/(6 ,/(>*. 2*(3/((/A 203 (043 /6*(3 &--/04. Wdd 00!=* ?$Cg !4 A2!-2 A* 2&=* .2* *&(;!*3.'(*,*(*4-* ./ H &-/;/33&; (*;!*, (/0>2;5 -&(=*1 /4 .2* (/-D3I /, /04. !75;03 !4 51!& .2* ,&-* /, A2!-2 !3 A&32*1 <5 & 3.(*&6 !4 30-2 &6&44*(.2&. !. &77*&(3 ./ <* A**7!4>' W *<< /4 /72 " R $g 2* &--/04.3 /, ;&.*(%A(!.*(3 =&(5 >(*&.;5 !4 (*37*-. /, .2* 464<*(/, .2* 1&0>2.*(3 /, !/<* &41 /, .2* 3-*4* /, 2*(1*&.2 /6*.!6*3 .2* 37/. A2*(* .2* 1!3&3.*(/--0(3 !3 51!& 3/6*.!6*3 2*<*3 A2*(* 6/(*/=*(.2* >(&=*/, !/<* 3 -2!;1(*4 A&3 7/!4.*1 /0.W .2* 3/43 7*(!32 !4 .2* -2&3* /(/4 .2* (&-*F -/0(3* A2!;* .2* 1&0>2.*(3 1!* !4 .2* (/5&; 7&;&-* &. 2*<*3 /(&. .2* <0(!&; /, .2*!(<(*.2(*4 2!3 3./(5 1*3-(!<*3 !/<* &3 (*F .0(4!4>,(/6 2*<*3./ 2*(2/6* /4 !75;03 &41 &3.2*(* -2&4>*1 !4./ &3./4* <5 L*03 &.2*(/A4*4.(*&.5 2* ,&.*/, !/<* A&3 /,.*4 !4 &4-!*4. .!6*3 .2* .2*6* </.2 /, 7/*.(5 &41 /, &(. 2*>(/07 /, .2* -2!;1(*4 /, !/<* 1!3-/=*(*1 &. /6* !4 $VR &41 4/A &. ;/F (*4-* 87&(. /, A2!-2 !3 32/A4 !4 .2* /0.g !3 A*;;'"D4/"A4W !.' !3 7(/<&<;5 .2* /6&4 -/75 /, & (**D A/(D A2!-2 3.//1 !4 ;!45 3 .!6* !4 & .*67;* /, 7/;;/ &. /6*&41 A!.2 (*>&(1 ./ A2!-2 !.' A&3 & 6//. ^ 7/!4. A!.2 .2* 8 ;/(*4-*] ,,!Q! 9 &4-!*4.3 A2*.2*(!.' A&3 ,(/6 .2* 2&41 /, - 7&3 /(' /, (&0;"' .;*3 f ;!45 > 000=!' @R $.&(D > " $R? g !343 3/4 /, &41!/4 <(/.2*(/, ! >*03 /, .2*43" D!4>' /, >&(&41 (*70.*1 <0!;1*(/, .2* 3*&7/(. !33*& 2*4 !413 !4.2* -/0(3* /,2!3 *07*1!.!/4 /,'(*7(!3&;&>&!43.' ,,;>*03 <*3!*>*1 *>&(& -5;;& !303 1&0>2.*(', (/6 ;/ *, /(.2* (*.&4 D!4>' <(/0>2.' &</0.' 2*(,&.2*(3 1*&.2<5 70;;!4>' /0.' &>/;1*4 /('8&--/(1!4> ./ &4/.2*(&--/04.g &70(7;* 2&!(/4.2* ./7 /, 2!3 2*&1 /4 A2!-2 2!3 ;!,* &41 .2*, &.* /, .2* (*&;6 1*7*41*1 !4/3 2/A*=*(' 1!1 4/.' (*A&(1 2*(.(*&-2*(5 2* ,&3.*4*1 2*(./.2* 3.*(4 /, 2!3 32!7 &41.203 1(/A4*1 2*(!4.2* &(/4!- 0;, /(' &--/(1!4> ./ /.2*(3 ;*,.' 2*(<*2!41 2!.2 A2*(*07/4 32* -&3. 2*(3*,' !4./.2* 3*&' &41 A&3 -2&4>*1 *!.2*(!4./ &' !,*2 /(' !4./ &' <!(1 -&;;*1 !(!3 /<!;!.5 &> 2* &(!3./-(&-5 /, /,,!-* A2!-2 &. /6* ./ /D .2* 7;&-* /, .2* 7&.(!-!&4 &(!3./-(&-5 (<!(.2 &,.*(.2* &16!33!/4 /, .2* 7;*<*!&43 ./ & .2* /,,!-*3 /, '3.&.* &41 .2* ;*=*;;!4> (.2* 1!3.!4-.!/4 <*.A**4'7&.(!-!&43 &41 7;*<*!&43 -/43* :0*4. .2*(*/4 .' -/67(!3*1 .2/3* 7&.(!-!&4 &41 7;*<*!&4 ,&6!;!*3 A2/3* 6*6<*(3 2&1 2*;1 /4* /,'.2* -0(0;* 6&>!3.(&-!*3 2*3*, &6!F ;!*3 /,(.2* 6/3. 7&(.' .2* 6/3.!;;03.(!/03 &41 A*&;.25 2&1 .2* !4,;0*4-* &41 6/4*5 A2!-2 &,,/(1*1 .2*6 .2* 4*-*33&(5 6*&43 ./ -&4=&33 ,/(&41 2/;1 &4 /,,!-* 203 !4 37!.* /, .2* .2*/(*.!-&;* :0&;!.5 /, (!>2.3

4 / A *O!3.!4> .2*5 &; 6 /3. -/ 67;*.*;5 *OF -;01*1 ,(/ 6 .2* 2!>2*(6&>!3.(&-!*3 &;; -!.!Q*43 b 2/ 2&1 4*!.2*(A*&;.2 2/ (4/<;** (*;&.!=*3 ./ 3077/(. .2*6 . A&3 :0!.** %*0-*7.!/4&; ,/(&6&4 A2/ 1!1 4/. <*;/4> ./ .2* 4/<!;!.5 ./ <* ,/(.04&.** *4/0>2 ./ &..&!4 ./ .2*6 , 2* 1!1 3/ 2* A&3 3.5;*1 4 (" 8& 4*A 6&4 &4 073.&(.9 . A&3 /4** /, .2* 7(!=!;*>*3 /, .2*4/<!;!.5 .2&. .2*5 *4K/5*1 .2* (!>2. ./ 7/33*33 !6&>*3 /, .2*!(&4-*3./(3 # A& /6*4 ** & /6*41&./(2* /6&4 .*(6 ,/(& %3;&=* A2/ 2&1 .2* 10.5 /, (*7/(.!4> ./ 2!3 6&3.*(.2* 4&6*3 /, .2!3 3;&=*3 8/,.*4 =*(5 406*(/039 /, .2/3** A2/ A&!.*1 /4 2!6 !4 .2* 6/(4!4> /, /.2*(=!3!./(3 &41 /, .2/3** A2/ 6*.2!6 A2*4 2** A&3 A&;D!4> &<(/&1 2* ;&..*(10.5 A&3 *37*-!&;;5 !67/(.&4. !, 2!3 6&3.*(A&3 & -&41!1&.* ,/(,,!-* (&41 !4 /(1*(./ >&!4 =/.*3 A&3 &4]!/ 3 ./ -&4=&33 6&45 /, .2** *;*-./(3 !4 .2* 70<;!-3.(**.3 f 2* A/(1 !3 7(/7*(;5 A(!..*4 G " "$ &3 !3 7(/=*1 <5 .2* *=!1*4-* %/, >;/33*3 &41 $ &(.!&; O N N" % 0*./4!03 1 $T $ 1 C$ $ C g

161725 - 3 88KO&(1! 43 /, .2* &A39 </&(1 ,/041 !4 1!,,*(*4.3.&.*3 /, (**-* A2!-2 2&1 ./ 3** ./ .2* /<3*(=&4-* /, .2* (*:0!(*6*4.3 /, .2* ;&A *37*-!&;;5 !4 .2* %1*;!<*(&.!=* &33*6<;!*3 . .2*43 &,.*(.2* &</;!.!/4 /, .2* (*/7&>03 &3 &</&(1 /, 307*(=!3!/4 8&</0.C?$ (&-/;;*>* /, 3*=*4 " (A&3 !4.(/10-*1 &3 &%-2*-D 07/4 .2* 3*4&.* .2* 70<;!- &33*6<;5 &41 .2* 6&>!3.(&.*3

1613#6 8$9 (!>!4&;;5 &4 &4-!*4. D!41 , !4 *7!- ,/(6 !4 7(&!3** /, 3/6** 1!=!4!.5 . A&3 *!.2*(H &0;/1!- I /(H -;.2& (V1!-I .2&. !3 !. A&3 304> ./ .2* &-F -/67&4!6*4. /, .2* ,;0.*/(.2* -!.2&(& 2* -!.2&(/1!- " A&3 ,(/6 &4-!*4. .!6*3 03*1 &. .2* ,*3.!=&;3 /, 7/;< A2/6 .2* /(!&43 *37*-!&;;5 A/(32!77*1 . (*-*!=*1 !.3 &(.!3.!-, /(6 ,(/6 *(7&41*(8&</0.?UV -9 7(!4-!7&;;5 <5 &353.*6&.!-1!3.(!<0.!/4 !4./ ,!=** /(3*=*4 7&(.3 /, A2!-2 .2(** A*(* .2** *33*4.!&;7/(.!/43 .2** 6!11;*/4** ,/(6!4> .2* -&(1!4&;7/!4. /, .2** A2/;* . ,/(6*1 '&4 !67/(.&4. *;*6*4. !4 .2* *;72!&4 ,*3.!=&; /, .2* 5.2!&4 7/;;/ 4 .2** /.2*(2&41 .2* &0;/1!- " A2!-2 ;14&3 %/, *> &2&1 !4.(/10-*1 !4 !6!.&./4 /, .2** " /, *(7&41*(&3 *&(;5 *0-;01*1 ,(/6 .2!3 ,*3.!=&; 5 .2** 3!1** /, .2** &4-!*4. " !4 A2!-2 .2** A/(13 A*(** 304> ./ &4 !43.(06*4.&; &--/67&4!6*4. .2*(** &(/3** &4/.2*(=&(!*.5 ,/(6*1 /4 .2** 3&6** 6/1*; 4 .2!3 .2** 3/4> A&3 1(&6&.!-&;;5 (*-!.*1 ./ .2** .04** /, .2** ,;0.** /(-!.2&(& &--/(1!4> &3 .2** 4/6/3 A&3 H &0;/1!-I /(H -!.2&(/1!- I , .2** ,/(6*(D!41 A&3 .2** " !4.(/10-*1 <5 .2** ,;0.*" 7;&5*(&* 1;3 /, (>/3 8&</0. VRN9 &. .2** 5.2!&4 >&6*3 &41 2*4-**-&;;*1 .2** , : (" & 603!-&; (*7(*3*4.&.!/4 /, .2** 1*F 3.(0-.!/4 /, .2** 1(&>/4 5.2? <5 7/;;/ . &;.*(7*(!/1 .2** 7(/=!4-** /, .2** A&3 6/(**&41 6/(**0.*41*1 &41 3*-0;&(!0*1 04.!; !. <*-&6** .2** 6/3.!67/(.&4. 7&(./, .2** 603!-!&4 3 7(/,*33!/4 f ;0.&(-2 5 -&7 !!!"O 77 $$ @"C g

>GH +1 !] # & 161.2 .3 .2*43 &-/66!33!/4 ,/(.2**O&6!4&.!/4 /, 7(/7/3*1 ;&A3 # ((C /4&3 2* /6&4 4&6** ,/(.2** V.2 /(U.2 1&5 /, .2** 6/4.2 # " I /4!03 &(-*;;03 &.!4 3-2/;&(/<(/(4 &. 20<0(3;-06 !4 ,(!-& 2/ -/67/3*1 !4 .2** <*>!44!4> /, .2** C.2 -*4.0(5 6&40&; /, 6!3-*;;&4*/03 !4,/(6&./4 /4 7/!4.3 /, ;*0!-/>(&725 >(&66&(&41 &4.!F :0!.!*3 <*&(!4> .2** .!.;** /, 5 5 $ "2 5 " .-/43!3.*1 /(!>!4&;;5 /, .A*4.5 <//D3 /4** /, A2!-2 !3 ;/3. .!3 *=!1*4.;5 ,/041*1 /4 .2** A/(D3 /, *&(;!*(3-2/;&(3 &41 !4 3/6** 7&(.3 *02!<!.3 *(<&; -/!4-!1*4-*3 A!.2 0;03 *;;!03 2/0>2 4/.32/A!4> .2** ;*&3.>*4!03 /(-(!.!-&; &-0F 6*4 .2** A/(D !3 /, >(*&.!67/(.&4-** /A!4> ./!.3 406*(/03 :0/.&.!/43 ,(/6 ;/3.&0.2/(3 *37*-!&;;5 /, .2** &(-2&!-7*(!/1 f ** (/, *..;*32!73 ; " 9 : 77 @UU" $ g

/4403 (**D 7/*./, & /7/;!3 !4 >57. <*;/4>!4> ./ .2** ?.2 -*4.0(5 3 &7&>&4 2** A(/.** A!.2 7/*.!-. &;*4. &41 !4 &37!(!.*1 .2/0>2 2!>2;5 (2*./(!-&; 3.5;** &=&.*7!- -&;;*1 .2** 5 " !4 ,/(.5"*!>2. </D3 /4** /, .2** -2!*, 3/0(-*3 ,/(/0(D4/A;*1>** /, .2** !/453!&-5-;** /, ;*>*413 3 &2(!3.!&4 2! -/67/3*1 &7&(&72(&3** /, .2** /37*; /, . /24 !4 (**D 2*0&6*.*(3 1.!.!& !>4;.&.46 ;!3./, .2** /,,!-*(3 /, .2** -/0(. &41 .2** -!=!; &41 6!;!.&(5 6&>!3.(&.*3 2!3 /,,!-!&; 6&40&; <*;/4>3 ./ .2** *41 /, .2** C.2 -*4.0(5 ((A2!-2 !3 /, >(*&.=&;0** ,/(.2** .&.!3.!-3 /, .2** /6&4 *67!(** &. .2&. .!6* . -/4.&!43 &;3/ .2** " 1" /, *&-2 6 &B.(&.** (*7(*F 3*4.*1 !4 1(&A!4>3 * 1=!03 A(!.*(/, < " #1 ,;/0(!32!4> &</0. TN !D* 2!3 -/4F .*67/(&(5 &41 (!=&; /6714!03 2** A&3 & 6&3.*(/, (*&15 37**-2 /, & -/&(3** &41 1(/;; 1*3-(!7.!/4 /6** /, '2!3 A!..5=*(3*

&(*' :0/.*1' <5' !-*(/' ' !!' @VV' @UT' @RVg' =*(' ,/(.5' .!.;*3' /,' 2!3' A/(D3' &(*' 6*4.!/4*1' &6/4>' .2*6 ' &3' !4' .2*' -&3*' /,' /67/4!03'3/6*' A2!-2' 30>>*3.' .(&=*3.!*3' /,' 65.2/;/>!-&;' 30<K*-.3" * > ' . ' L' D @ "

06 62;J(!!' ' 0 *(

06603'# " ' '37*-!&;' 4&6*' ,/(' .2*' -/66/4*3.'-/!4' &.' /6*' A2!-2' >*4*(&;;5' 3*(=*1'&3'.2*'04!.'/,'(*-D/4!4>'.2*' '

' " ' "

B ^041!4&3' 2*' /6&4'.*(6',/(' .2*' 6&(FD*.'1&5'2*;1'/4'.2*' ;&3.'1&5'/,' .2*' A**D'/,' *!>2.'1&53' /4' A2!-2' -/04.(56*4' (B.*1',(/6';&<0(' &41' -&6*' ./' /6*' .7' <05' &41' 3*;;'&3'A*;;'&3'./'1/'/.2*('<03!4*33' --/(1F!4>;5' .2*' 041!4&*' A*(*' 03*1' ,/(' 70<;!-' &44/04-*6*4.3'*37*-!&;;5'-/4-*(4!4>'70<;!-' &33*6<;!*3'&41' .2*' <03!4*33'./'<*' /410-.*1' !4'.2*6 ' 2*' &-.0&;' </;1!4>' /,' .2*' &33*6F<;!*3' /4' .2*3*' 1&53' A&3'&=/!1*1'3/' &3'4/.'./'7(*=*4.'.2*' 7*/7;*' ,(/6'&..*41!4>'./' .2*' <03!4*33'/,' .2*' 6&(D*.' (!>!4&;;5' ./' 4/' ;*>&;' <03!4*33'A&3'-/410-.*1' /4' .2*6 ' &41' !.' A&3' 4/.' .!;;' .2*' <*>!44!4>' /,' .2*' (1' -*4.0(5' /' .2&.' !.' A&3' !4.(/10-*1' 2*' 041!4&*' .2/0>2' 4/.' &' (*>0;&(',*&3."1&5' A*(*'4*=*(.2*;*33'-*;*<(&.*1'!4'7(!=&.*' ;!,*' <5' !4=!.!4>' 3.(&4>*(3' ./' /4*3' .&<;*' &41' *0*67.!4>'-2!;1(*4',(/6'>/!4>'./'3-2//;

5-.*03' /4'/,' 3*!1/4'&41' .2*' ;*!&1' ;&*4/'<(/.2*('/,' B-03'# ' $9'&41',&.2*(' /,' 4.;/7*'# ' ,.*(' .2*' *&(;5'1*&.2'/,' &1603'3/4' ;51/(03'2*'&16!4!3.*(*1'.2*' >/=*(46*4.'/,' 2*<*3' ,/(' &<1 -03'A2/' A&3'&' 6!4/(' 04.!;' 2*' 6*.' 2!3' 1*&.2' !4' <&..;*'A!.2' 7 7*03'2!3'1&0>2.*(3'203<&41 56723'8K7(/7*(;5'H .2*'5/04>'6&!1*43I9' 4,*(!/(' 1!=B.!*3' /,' &.0(*' A2/'1A*;;' !4' >(/=*3' ,/(*3.3' &41' -&=*3' <*3!1*' 37(!4>3' 3.(*&63' &41' (!=*(3#' !4' 3/6*' -&3*3' ./' /4' ;/4*;5' !3;&413' ;!D*' &;573/' &41' !(->' 2*' 456723' /,' .2*' 2!;;3' .2*' ,/(*3.3' .2*' 6*&1/A3'&41' .2*'37(!4>3'8-&;;*1'!4' /6*('1&0>2.*(3' /,' L*03' A2!;*' *3!/1' 6&D*3' .2*' 4 04723' /,' .2*' 2!;;3' &41' .2*' ,/(*3.3' ./>*.2*(' A!.2' .2*' 2!;;3' &41' .2*' ,/(*3.3' -2!;1(*4' /,' *&(.29' &77*&(' &3' .2*' <*4*=/F;*.'37!(!.3' /,' .2*3*' 37/.3'&41' ;*&1' &' ;!,*' /,';!<*(.5' 3/6*.!6*3' A*&=!4>' !4' >(/../*3' 3/6*.!6*3'1&4-!4>' &41' 3!4>!4>' 3/6*.!6*3' 204.!4>' A!.2' (. 6!3' /(' (*=*;;!4>' A!.2 !/45303' *3!1*3".2*3*' 1!=!4!.!*3' !.' !3' *37*-!&;;5' 7/;;/' *(6*3'&41' &4' A2/'&(*' 1*=/.*1'./' .2*6' &41' 3**D' &,.*(' .2*!(';/=*' A2!;*' .2*' A&4./4' 3&.5(3'&(*' &;3/' -/4.!40F&;;5';5!4>'!4' A&!.',/(' .2*6 ' 2*5' &(*' A*;;' 1!37/3*1'./A&(13'6/(.&;3'&41'(*&15'./' 2*;7' .2*6 .2*5'*=*4'A*1'A!.2' .2*6 ' --/(1F!4>'./' .2*' =&(!/03' 7(/=!4-*3'/,'4&.0(*' A*(*' 1!3.!4>0!32*1' =&(!/03' D!413' /,' 456723' 456723'/,'(!=*(3'&41' 37(!4>3' .2*' > ' ./' A2/6' .2*' -*&4!13' &41' *(*!13' &(*' -;/3*;5'(*;&.*1" 456723'/,' .2*' 2!;;3' 456723'/,' .2*',/(*3.3' &41' .(**3' 5 : ' ' " <*3!1*3' .2!3' .2*5' /,.*4' (*F-*!=*1' 37*-!&;' 4&6*3' &,.*(' -*(.&!4' 7;&-*3' 2!;;3'37(!4>3'&41'B/../*3' 2*' &!&13'&3' .2*' >/11*33*3' /,' .2*' 4/0(!32!4>'&41',(0-.!F,5!4>'A&.*(' A*(*' *37*-!&;;5'(!-2'!4',&=/0(3' >!=!4>' !4-(*&3*' &41' ,(0!.,0;4*33' ./' 7;&4.3' 2*(13'&41' 6/(.&;3' *4-*' .2*5' A*(*' &;3/' -/43!1*(*1' &3' .2*' >0&(1!&4' >/11*33*3' /,' 6&((!&>*' &41' .2*' <*37(!4D;!4>' /,' .2*' <(!1*' A!.2' 37(!4>"A&.*(' A&3' /4*' /,' .2*' !41!37*4F3&<;*' (!.*3' /,' .2*' 6&((!&>*' -*(*6/45' 4' .2*' 3&6*7(!4-!7;*';*>*41&(5';/(*'(*7(*3*4.3' .2*6' &3' 40(3!4>' &41' <(!4>!4>' 07' .2*' -2!;F1(*4' /,' .2*' >/13' &3',/(' !43.&4-*' L*03' &41' !/45303' 0(.2*(' /A!4>' ./' .2*' 2*&;!4>' &41' !437!(!4>' 7/A*(' /,' 6&45'37(!4>3' .2*5' <*;/4>' ./' .2*' 1!=!4!.!*3' /,' 2*&;!4>' &41' 7(/F72*35!4>' &41' -&4' *=*4' 1(!=*' 6*4c!4./' &'.(&437/(./,'7(/72*.!-'&41'7/*.!-'!437!(&.!/4' 2*' 03*3' .2*63*;=*3' &(*' !4' .2*!(' /(!>!4',/04.&!4"456723'ń /70;&(' <*;!*,' &33!>4*1' ./' .2*' 456723' !4' >*4*(&;' &4' *0-**1!4>;5';/4>';!,*' A!.2/0.' &-.0&;'!6 6/(.&;!.5' 2*' *0!3.*4-*' /,' (5&13' !.' A&3' 3077/3*1' A&3' -;/3*;5'</041'07' A!.2' .2*' /(!>!4' &41' 1*-&5' /,' .2*' .(**' !4' A2!-2' .2*5' 1A*;.' 2*5' *4K/5*1' 1!=!4*' 2/4/0!4' ,(/6' .2*' *&(;!*3.' .!6*3' /(!>!4&;;5' !4' .2*' 37/.3' A2*(*' .2*5' 2&1'7/A*(' &.' ,/04.&!43' &41' !4' >(/=*3' &41' >(/../*3' 4' ;&.*(' .!6*3' 32(!4*3' /,' .2*!(' /A4' 2*4-*' -&;;*1' >: (' A*(*' <0!;.' ./' .2*6 ' *=*4' !4' -!.!*3' 2*3*' *=*4.0&;;5' <*-&6*'=*(5'6&>4!,!-*4.'<0!;1!4>3' !4' A2!-2' !.' A&3' -03./6&(5' ./' -*;*<(&.*' 6&((!&>*3' /&.3';&6<3' 6!;D' &41' /!;' A*(*' /,,*(*1' ./' .2*6 ' /(D3'/,'&(.'(*7(*3*4.*1'.2*6'!4'.2*',/(6'/,'-2&(6!4>'6&!1*43';!>2.;5'-;/.2*1'/(' 4&D*1'A!.2',;/A*(3'&41'>&(;&413".2*' &!&13' 1(&A!4>'A&.*(' ./(' -&((5!4>'!.' !4' &4' 0(4

?<*' 2*' 7&(.&4' .*(6',/(' *&-2' /,' .2*' N'30<"1!=!3!/43'/,'.2*' (: '# ' 1<1;03' 'A*!>2.'&3'A*;;'&3'&'3!;=*(' -/!4 &6/4>' .2*' (**D3' 1(&-26&" .2*' ..!-' /</;03'&6/04.*1' !4' !4.(!43!-'=&;0*' ./' 1' #$ ' " ' 2*' &4-!*4.3'03*1' ./' 70.

.2!3 -/6 !4 .2* 6/0.23 /, .2* 1*&1 &3 7&33&>*"6/4*5,/(2&(/4 .2* ,*((56&4 !4 .2*;/A*(A/(;1 % %

23>:0*43 &.!4&0.2/(8VXa- . @9 --27&.!/ 2* /6&4 .*(6 ,/(.2* &77(/7(!&.!/4 /, 04.!;;*1 7/(.!/43 /, .2* .&.*;&413 -/43*:0*4.07/4 .2* !4=!.&.!/4 /, .2* .&.* &41 2&=!4>,/(!.3 /<K*-. .2* -0;.!=&.!/4 /, .2*3/!; # (%? A"A $

7 !6.3 4 (**D 65.2/;/>5/(!>!4&;;5 .2* &4-!*4.(!=*(/, .2* A/(;1 A2!-2 ,;/A3 %&(/041 &41 </0413 .2* *&(.2 &41 3*& !.F 3*;,04</041*1 &41,;/A!4><&-D!4./!.3*;, (/K4 -*&403 &(!3* &;;3*&3 (!=*(3 3.(*&63 &41 ,/04.&!43 *(/1<.03 !3 .2* ,!(3./ /77/3* .2!3 =!*A f!! @ != R ?g / /6*(-*&403 !3 .2* <*>!44!4> /, &;,; .2!4>3 *=*4/, .2* >/13M 2* .2* /(!>!4&;, &.2*(&41 2!3 A!,* + (: .2* /(!>!4&; 6/.2*(!.2 2*(2* ;!=*3 & >*4.;* &41 2/37!.&<;* /;1 6&4 !4 .2* ,&(.2*3. A*3. &A&5,(/6 .2* A/(;1 &41 !.3 1/!4>3 * D**73 &;//,*=*4,(/6 .;* &33*6<;!*3/, .2* >/13 &;.2/0>2 (!=*(>/13 &41 45672 3 &77*&(.2*(* .!3 A!.2.2* &>*1 7&!(.2&. *(& >(/ 3 07 &41 !.!3./ .2*6 .2&. 32* ,;**3/4 .2* /0.<(*&D /, .2* A&(A!.2 .2* !.&43 --/(1!4>./ *3!/1 M+(1 $ U" UNg -*&403 &41 *.253 &(* -2!;1(*4 /, (403 &41 &*&B .2* ,/(6*(.2* /;1*3. /, .2* !.&43 A2/ &,.*(.2* ,&;;/, (<403 30<6!..*1 ./ L*..3 (/6 2!6 &(* 37(04> NNN 3/43 &41 &3 6&45 1&0>2.*(3 .2* C a " 2* /;1*3./,.2* ,&6!;5 A2!-2 !3 37(*&1 /=*(.2* A2/;* *&(.2 &(* -2>;/03 '&41 .50 -*&403 A&3 (*7(*3*4.*1 &3 & =*4*(&<;* /;1 6&4 A!.2 &;/4> <*&(1M /4 D!3 2*&1 &(* <.1;3 2/(43 &,.*(.2* 030&; 6&44*(/,(!=*(>/13 /(-(&< 3 -;&A3 &3 /03./6&(5 A!.2 >/13 /, .2* 3*& &41 2* !3 30(((/041*1 <5 3*& 6/43.*(3

1-*;;03 (**D 72!;/3/72*(&,/;;/A*(/,.2* 5.2&>/(*&4 3-2//;# *

-2;/-(&-5 86/<"(0;*9 2* 4&6* &6/4> .2* (**D3,/(.2&.,/(6 /,1*6/-(&-5 !4 A2!-2 .2* -!.!Q*43 A*(* &16!..*1 ./ .2* >/=*(46*4./,.2* .&.* A!.2/0.&45 >(&1&F .!/4 /, -;&33*3 /(&45 ;*>&;7(/=!3!/4 ,/(-2*-D!4>.2* -&7(!-* /,.2* 7/70;&-* 41*(30-2 &-/43.!.0.!/4 70<;!-6&..*(3 ,*;;!4./ .2* 2&413 /,.2* ;/A*3 -;&33 /, .2* 7*/7;* -.&?.*(?3 8 (2 7*(!/1 /, *!>2.5*&(3 # "

11*!14 8 &. @ 2* (**D .*(6 ,/(&<0!;1!4>-/43.!"0-.*1,/(6 03!-&;7*(F ,/(6&4-*3 /4 .2* 7;&4 /, & .2*&.(* <0. A!.2 ,&(3;!>2.*(7(/7/(.!/43 &41 7(/=!1*1 A!.2 & (//,/(&-/03.!-&;70(7/3*3 *4-* %&;3/ .2* 3.&>* A&3 4/.3/1**7 &41 *41*1 !4 .2(** A&;;3 A2!-2 &<0..*1 A!.2 /4* &4/.2*(&. /<.03* &4>;*3 f 2* /;1*3. 1*!/4 !4 .2*43 A&3 .2&.K4 2* 4*!>2</0(2//1 /, .2* ,/04.&!4 /, 44?& -(,;403 8 &03&4 ! !C %$9 /4 .2* ;!3303 3/0.2 /, .2* ;567!>06 2!3 1*!/4 A&3 7(/<&<;5 <0!;. !4 .2* .!6* /, .2* !3!3.(.;13* g

2* <0!;1!4> A2!-2 3*(=*1 &3 & 7&..*(4 ,/(&;; ;&.*(/4*3 /, .2!3 D!41 A&3 .2* 1*!/4 <0!;. <5 (-;`3 &</0. CCV R !4.*41*1 &. ,!(3. ,/(.2* 603!-&; -/4.*3.3 &. .2* &4&.2*4&!-> &6*3 <0. &,.*(A&(13 03*1 <5 7/*.3 &41 603!-!&43 ,/((*2*&(3&;3 <5 72!;/3/72*(3 ,/(1!3-033!/43 &41 3/6*F .!6*3 *=*4 ,/(K01!-!&; <03!4*33 2!3 <0!;1!4> A&3 (*3./(*1 &,.*(!.3 1*3.(0-.!/4 <5 ,!(* 8RU -9 <5 D!4> (!/<&(Q&4*3 2;; 7&./(2* ,!(3. &. /6* A&3 <0!;. <5 /6!.!&4 8&</0. R? 9 & 3*-/41 <5 (&K&4 2&./, *(/1*3 ..!-03 9(1 A&3 -/43!1*(*1 .2* ;&(>*3. &41 6/3. 6&>F 4!,!-*4. !4 &4-!*4. !6*3M !. A&3 <0!;. 3//4 &,.*($?N &. .2*43 <*;/A .2* 3/0.2 A*3.*(4 -;!,, /, .2* -(/7/!3 !4 2/4/0(/, 2!3 1*-*&3*1 A!,* 44!& *>!;;& &41 -/43!1*(&<;* 7&(./,!.!3 3.!;; 3.&41!4> . 2*;1 &</0. RNNN 7*(3/43 &41 2&1 & (//,/ -/67/3*1 /,<*&63 /,-*1&(A//1

1533*03 8.2* &.!4*:0!=&;*4.!3 < 2 *((/4*/03;5 A(!..*4 : ^!4> /, .2,.-1 3/4/, &*(.*3 &41 4.!-;*& 1&0>2.*(/, 0. ;5-03 4 3." /6*(!/;*>*41 2* !3 -&;;*1 & 3/4 /, !357203 </(4* <5 4.!-;*& <*,/(*2*(6&((!&>* A!.2 &*(.*3 --/(1!4> ./ /6*(2!3 4&6*H ((A&3 >!=*4 2!6 <5 2!3 >(&41,&.2*(0./;5-03 <*-&03* 2* 2!63*;, 2&1 3/ ,.*4 -2*(!32*1 ,**;!4>3 /, 2&.(*1 10(!4> 2!3 ;!,*% 0!O CN@g !3 A!,* *4 ;<7* 8/(*4*;<7*!&9 1&0>2.*(/, -J(!03 9 .) !3 3&!1 <5 ;&.*(;*>*413./ 2&=* <**4 /<.&!4*1 ,/(2!6 <5 2*(04-;* 541&(/3!4>(&.!.01*,/(-/043*; >!=*4 <5 2!6 # * * 2*4 2!3 3/4 ;>6 *203 A& 3.!;; &4 !4,&4. >&6*64 4 &41 *4>;&03 &3 /6*(.*;;3 03 7(*=&!;*1 /4 2!6 ./ .&D* 7&(.!4 .2* *OF 7*1!.!/4 &>&!43 (/5 2*!(.&3D A&3 2&(1 &3 !.2&1 <**4 7(*1!-.*1./ 2!6 .2&.!.A/0;1 <* .A*4.5 5*&(3 <*,/(* 2* 3&A 2!3 A!,* &41 -2!;1 &>&!4 &.*(A(!.*(3 (*;&.* .2&.2* A&3 </041 &3 /4* /, *;*4 3 30!./(3 ./ .&D* 7&(.!4 .2* 3-2* 6*K <0. .(!*1 ./ *3-&7* 2!3 /<;!>&.!/4 <5 ,*!>4!4> 6&14*33 &41 &6 4> /.2*(&-.3 5/D*1 & 2/(3* &41 &4 /0 ./ <!3 7;/0>2 &41 3/ 7;/0>2*1 & ,!*;1 2*4 2/A*=*(& !6*1 3 A2/ A!.2 *3./(&41 *4*;&03 A&3 1*3!(/03 /, .&D!4> 2!6 ./ (/5 7(/-**1*1 ./ 7;&-* *;*6&-203 !4 .2)

,0((/A 2* <*.(&5*1 2!63*;, &41 2&1 ./* &--/67&45 .2*6 ./ A&(*;*1 .2* 6*4 /, .2&-&41 .2* 30((/041!4>!3;*3 ./ (/5 !4 .A*;=* =*33*;3 4 -/4.(&3../ .2* ;&.*(; *>*41 A2!-2 (*7(*3*4.3 2!6 &3 &-/A&(1;5 1*-*!.,0; &41 !4.(!>0!4> 7*(3/4&>* 4* &;A&53 &77*&(3 !4 /6*(&6/4> .2* 4/<;*3. &41 6/3. (*37*-.*1 /, .2* 2*(/*3 &41 /4 &--/04./ /, 2!3 >//1 :0&;!.!*3 2* !3 .2* 1*F -;&(*1 ,&=/0(!.* /, .2*4* *-/6<!4*3 !4 2!3 7*(3/4-/0(&>* &41 1*.*(6!4*1 7*(3*=*(F &4-* A!.2 7(01*4-* !4>*40!.5 -044!4> &41 *;/:0*4-* --/(1!4>;5 2* !3 *67;/5*1 <5 7(*,*(*4-* &3 &4*>/.!&./(&41 &375 203 &,.*(.2* 1!3*6<&(D&.!/4 2* >/*3 A!.2 *4*;&0 !4./ .2* *4*653 -!.5 ./ 1*6&41 .2* 30((*41*(/, *;*4 >&!4 2* !3 &6/4> .2/3* A2/ &(* 1*37&.-2*1 <5 .2* (**D3 ./ (*-/4-!;* A!.2 >&6*644/4 .2* *4(&>*1 -2!;;*3 !.2 ! 6*1*3 A2/ 1*;!>2.3 !4 2!3 -/67&45 2* -&7.0(*3 .2* 375 ?;?4 &41 30(7(!3*3 2*303" A!.2 .2* 3&6* 2*(/ 2* !3 3&!1 <5 ;&.*(;*>*41 ./ 2&=* 3./;*4 .2* &;; 1!06 ,(/6 (/5 2*4 >&6*64/4 ,&!4."2*&(.*1;5 .2!4D3 /, ,;!>2. 2* /77/3*3 .2!3 !1*&A!.2 .2* 0.6/3.1*-!3!/4 =*(5A2*(* 2* &=&!;3 2!63*;, /, .2* (!>2. .!6* &41 .2* (!>2. 7;&-* &41 A2*(* -/0(&>* &41 -044!4> &(* 4**1*1 !3 *=*(.2* ,/(*6/3. ,.*(-2!;;*3 1*&.2 !4 .2* -/4.*3. A!.2 K&0 .2* 3/4 /, *; 6/4 2* (*-*!=*3 .2* 2*(/3 &(63 &3 &(*-/>4!.!/4 /, 2!3 3*(=!-*3 &41 <5 2!3 !4>*40!.5 <(!4>3 &</0. .2* ,&;; /, (/5 2/(.;5 <*,/(* !. 2* 3.*&;3 !4./ .2* -!.5 !4 .2* >&(< /, &<*>>&(!4 /(1*(./ (*-/44/!.(* *=*(5.2!4> .2*(** 2* .2*4 -;!6<3 A!.2 .2* /.2*(3 !4./ .2* A//1*4 2/(3* &41 -/4.(!=*3 ./ -/4.(/; .2* !67&.!*4. &41 .2* .!61 &;!D* 04.!; .2* 1*-!3!=* 6/6*4.

!3 &1=*4.0(*3 10(!4> .2* (*.0(4 ,(/6 (/5 &41 /4 2!3 &((!=&; !4 2!3 4&.!=* -/04.(5 ,/(6 .2* -/4.*4.3 /, .2* : :* /, /6*(6 6*1!&.*;5 &,.*(.2* 1*7&(.0(* 1533*03 !3 1(!=*4 ./ .2* 2(&-!&4 36&63 .2* -!.5 /, .2* ;- 4 3 &41 .2/0>2 2* 7;041*(3 .2*6 ;/3*3 !4 &30(7(!3*3*=*4.5" .A/ /, 2!3 -/67&4!/43 2*4 2* !3 4/A 1*3!(/03 /, (/041!4> .2* 3/0.2"*&3./7!4./ /, .2* *;/7/44*303 .2* 7(/6/4./(5 /, &;>&* 2* !3 -&0>2.<5 .2* 3./(6 &41 -&((!*1 !4 4!4* 1&53 ./ .2* -/&3./ /, /(.2 ,(!-& /4 ./ .2* ;&41 /, .2* ; . 1 /.03"*&.*(3 A2*4-* 2* 2&3 ./ 1(&> 2!3 -/67&4!/43 <5 ,/(-* ./ 7(*=*4. .2*!(,/(>*..!4> .2*!(2/6*3 ,/(;/=* /, .2* 3A** .;/.03 ,/!1 2*4-* .2* =/5&>* 7&33*3 !4./ .2* ;*>*41&(5 A/(;1 /, .2* *3.*(4 3*& .2*4 ;!..;* D4/A4 ./ .2* (**D3 1533*03 -/6*3 ,!(3. ./ .2* -/(6.(5 /, .2* $: &12= A2*(* A!.2 .A*;=* /, 2!3 -/6(&1*3 2* !3 320. 07 !4 & -&=*(4 <5 <;572*603 2* 6/43.*(2&3 &;(*&15 1*=/0(*1 2&;, /, 1533*03 -/67&4!/43 <*,/(* .2*;&..*(!4./0!-&.*3 2!4 8,!> $9 1*7(!=*3 2!6 /, 2!3 /4* *5* &41 <5 <!3 -044!4> *3-&7*3 A!.2 2!3 -/6(&1*3 (4 .2!3 .!6* .2* &4>*(/, <3*!1/4 /4 A2/4 /;572*603 -&;3 , /((*=*4>* 70(30*3 2!4 &41 D**73 2!6 ,&(,(/6 2!3 -/04.(5 4 .2X !3;&41 /, 9 .2* ^**7*(/, .2* !41, 8:.a9 2* ,!413 2/37!.&<;* *4.*(.&!46*4. &41 (*-*!=*3 /4 2!3 1*7&(.0(* &;*&.2*((<&> !4 A2!-2 &(!4-;/3*1 &;, .2* A!41 *0-*7. .2* A*3.*(4 2*;&..*(0A/0;1 -&((" 2!6 !4 4!4* 1&53 ./ .2* -/&3./ /, .2&-& <0 A2!;3. 1533*03 !3 .&D!4> (*3. 2!3 -/6(&1* /7*4 .2* <&> A2!-2 .2*5 !6&>!4* ./-/(!.&!K

g ; 8 .&.0*..* !4 &.!- 4 03*= 4 /(4*9

.(*&30(* &41 .2* A!413 .203 (*;*&3*1 -&((5 .2*6 <&-D ./ 8 /;03 * /(1*(3 .2*6 /, ,(/6 2!3 !3;&41 (*>&(1!4> .2*6 &3 *4*6!*3 /, .2* >/13 4 -/6!4> ./ *; 75;03 .2* -!.5 /, 603 D!4> 4.!72&.*3 &41 2!3 ; E1 " -&44!<&;3 /, !66*43* 3.&.0(* 32&..*(*;*=*4 /, .2*!(=*33*;3 &41 .2* .A*;,.2 !3 3&=*1 /4;5 <5 1533*03 A&(!F 4*33 # ,!> V 9 4 .2* !3;&41 /, 9 " .2* 3/(-*(*33 $ .0(43 7&(. /, 2!3 -(*A !4./3A!4* <0. A!.2 .2* 2*;7 /, *(6*3 2* -/67*;3 2*(./ (*3./(*2*6 ./"% .2*!(206&4 32&7* &41 37*413 & A2/;* 5*&(A!.2 2*(!4 7;*&30(* &41 *4K/56*4. 2*4 2!3 -/67&4!/43 0(>* 2!6 ./ (*.0(4 2/6* !(-* <!13 2!6 ,!(3.3&!, ./A&(1 .2* ,&(.2*3. A*3. ./ .2* *4.(&4-* !4./ .2*

;/A*('A/(;1'/4'.2*',&(.2*('2&4D'/,' -> 403'&41'.2*(*' :0*3.!/4'.2*' 32&1*' /,'.2*' 3**('!(*3;&3'-/4-*(4!4>'2!3'(*.0(4' # ' / ' ? P 0' = ' (/6'.2*';&..*('2*';*&(43'.2&.'!.'!3'.2*' 6&;!-*' /,' /361/4'.2&.'7(*=*4.3'2!3'(*.0(4'<0.'.2&.'4*=*(.2*;*33'2*' A!:;'4/A'&..&!4'2!3'/<\(*-.'!,'2!3'-/6(&1*3'37&(*'.2*'-&..;*' /,' *;!/3'/4'.2*'!3;&41'/,' 2(!4 '' -;&' /.2*(A!3*' !.'A!:;'/4;5'<*' &,.*('&';/4>'.!6*'1*7(!=*1'/,'&:;' 2!3'-/6(&1*3'&41'/4'&,/(*!>4'32!7'.2&.'2*' A!:;'(*&-2'2!3'2/6*' 1533*03'.2*4'(*.0(43'./'.2*'!3;*' /,' !(-*' &41'3*.3'/0.'/4'2!3'2/6*A&(1'=/5&>*'307F7;!*1'<5'2*('A!.2'=&;0&<;*'1!(*-.!/43'&41'&,&=/0(!4>'A!41' &33!4>'.2*' !3;*3'/,' .2*' '' & ' &41' 3&!;!4>'.2(/0>2' : ' '' $(:('& 2 '2*'(*&-2*3'.2*' !3;&41'/,' 2(!4 - &'A2*(*'2*' !3'-/67*:;*1'./';&41'<5'2!3'-/6(&1*3' 2*5'&(*'.2*'(*'1*.&!4*1',/(' &'6/4.2'<5'-/4.(&(5'A!413' &.' ;*4>.2'2!3'-/6(&1*3'/=*(-/6*'<5'204>*(''!4'37!.*'/,' .2*' /&.2' .2*5' 2&=*' 3A/(4'./' 2!6'3;&0>2.*('1644>'2!3'&<3*4-*' .2*' ,!4*3.'/,' .2*'-&..;*'/,' *;!/3' -&(-*;5'&(*'.2*5'/4-*'6/(*'&.'3*&'A2*4'&' .*((!<;*'3./(6'<(*&D3',/(.2'&41'L*03'37;!.3'.2*'32!7'!4'.A&!4'A!.2'&' ,;&32'/,' ;!>2.4!4>' &3'&' 7*4&;.5',/(' .2*'/,,*4-*' ;:;' 7*(!32' *0-*7.' 1533*03' A2/'-;!4>3'./'.2*' 6&3.'&41'D**;'&41'!3'-&((!*1'<&-D'<5'.2*'A&=*3'./' -5;;&'&41' 2&(5<1!3'&41'&,.*(' 4!4*' 1&53'(*&-2*3' .2*' !3;&41'/,' >5>;&' .2*'&</1*' /,' .2*' 45672' $: 1&0>2.*(' /,' .;&3' /(' 3*=*4' 5*&(3'2*'1A*;;3'2*(*'A!.2'.2*'45672'A2/'7(/6!3*3'2!6'!66/(.&;!.5'&41' *.*(4&;'5/0.2'!,' 2*'A!:;'-/43*4.'./'(*6&!4'A!.2'2*('&41'<*'2*('203<&41' 0.'.2*' 5*&(4!4>',/(' 2!3'A!,*'&41' 2/6*' 6&D*' 2!6'7(//,' &>&!43.'2*('34&(*3' ;:;'.2*' 1&5';/4>'2*' 3!.3'/4'.2*'32/(*' >&Q!4>'.2(/0>2'2!3'.*&(3'&-(/33'.2*'</&1'3*&' ,&!4'A/0;1'2*' -&.-2'&' >;!673*'A*(*'!.'/4;5'/,'.2*'(!3!4>'336/D*'/,'2!3'2/6*'&41'.2*(*&,.*(' 1!*' /' 2!3'7(/.*-.(*33' .2*4*' 10(!4>' /3*!1/43'&<3*4-*'7(*F=&!;'/4'L*03'!4'&4'&33*6<;5'/,'.2*' >/13'./'1*-(**' 2!3'(*.0(4'&41'./'3*41' *(6`3'./'/(1*(' &;573/'./'(*;*&3*' 2!6' /(4*'/4'&'(&,.'/,' 2!3'/A4'<0!;1!4>'2*' -/6*3'!4'*!>2.**4'1&53'4*&(' ./' -2*(;&' .2*' !3;&41'/,' .2*' 23*&-!&43'A2*4' /3*!1/4'-&.-2*3'3!>2.'/,'2!6'&41'32&..*(3'2!3'(&,.'!4'7!*-*3' /A*=*(' A!.2' .2*' &!1' /,' .2*' =*!;' /,' 4/*0-,!.2*&' # '2*' (*&-2*3';&41'!4'3&,*.5'&41' 6**.3'A!.2' &03!-&&' .2*' D!4>3'1&0>2.*(' A2/' -/410-.3'2!6'!4./' .2*' 2&K&-!&4'-!.5'<*,/(*' 2*('7&(*4.3' " ' # ' &41' (*.*' *' (*-*!=*3' .2*' 6/3.'2/37!.&<;*' .(*&.6*4.'&41'!3' .2*4' <(/0>2.';/&1*1' A!.2' 7(*3*4.3'<5'.2*' 23*&-!&43'/4</&(1'/4*/,'.2*!('6&(=*;;/03'=*33*;3'./'2!3'-/04.(5'A2!-2' 2*' (*&-2*3' &,.*(' .A*4.5'5*&(3'&<3*4-*' A2!;*' &3;**7' *' &((!=*3'K03.'!4'.!6*' ./'A&(1'/,;'.2*'1!3&3.*('.2&.'!3'.2(*&.*4!4>'2!3'2/03*' ,.*(' 2!3'6/.2*('4.!-;*&'2&1'1!*1'/,'>(!*,',/('2*('3/4'&41'.2*' /;1' &*(.*3'2&1' (*.!(*1'./'2!3'-/04.(5'*3.&.*' !4' 6/0(4!4>'6/(*' .2&4'&' 2041(*1'4/<;*'5/0.23'/,' .2&-&'&41'.2*' 30((/041!4>'!3;*3'2&1'&77*&(*1'&3'30!./(3',/('".2*' 2&41'/,'.2*',&!('&41'-2&3.*, " '2&1'7*(3*-0.*1'*;*6&-203'A2/'A&3'4/A'>(/A!4>'07'./'6&42//1'&41'A*(*' A&3.!4>' .2*' 30<3.&4-*'/,' .2*' &<3*4.' 1533*03' *4*;/7*' 2&1'1*F6&41*1'&'(*37!.*',(/6'6&D!4>'2*('1*-!3!/4'704.!;' 32*' 2&1' ,!4!32*1'A*&=!4>'&'32(/01'!4F.*41*1',/('2*(',&.2*("!4";&A'&41'*=*(5'4!>2.

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04(&=*:;*1'.2*' A/(D'/,' .2*' 1&5' 4' .2*' ,/0(.2'5*&('/4*' /,' 2*(' &..*41&4.3'<*.(&5*1'.2*' 3*-(*."32*2&1'./'-/67;*.*' .2*'>&(6*4.'&41'A2*4'0(>*1'./' 6&D*' 2*('1*-!3!/4'7(/F6!3*1'./'-2//3*'.2*' 6&4'A2/'32/0;1'A!4'!4'&32//.!4>'6&.-2'A!.2' 1533*03'</A'2/7!4>'.2&.'4/4*' /,' .2*' A//*(3'A/0;1'<*' &<;*' *=*4'3/' 60-2'&3'./'<*41'!.' 03.'<*,/(*' .2*' 1&5'/,' .(!&;' 1533*03';&413'/4' .2*' !3;&41' 1!3F>0!3*1'<5' .2*4*' &3'&'<*>>&(' ' *' <*.&D*3'2!63*;,' ./' .2*' ,*A'(*.&!4*(3'A2/'2&=*'(*6&!4*1'.(0*' ./' 2!6'A2/'(*-*!=*3'2!3'6&3.*('A2/'6'2*' ,&!;3' ./' (*-/>4!3*'!4'&'2/37!.&<;*' 6&44*(' /' .2*'3&6*'37/.' .2*4*'<(!4>3' *;*6&-203'A2/'2&3'(*.0(4*1'!4'3&,*.5'!4' 37!.*' /,' .2*' 7;/.3' /,' .2*' 30!./(3' ,(/6' & K/0(4*5'

*3./(' &.' 5;03' &41' *4*;&03' &41' *;*4' !4' 7&(.&' *(*07/4' 1533*03' 6&D*3' 2! 6 3*;,' D4/A4' &41' ./>*.2*(' A!.2' 2!3' 3/4' &41' (*F .&!4*(' -/4-*(.3' 2!3' 7;&4' /,' (*=*4>*' 4' .2*' 32&7*' /,' &' <*>>&(' 2*' <*.&D*3' 2! 6 3*;,' ./' .2*' 2/03*' A2*(*' 2*' 6&4,0;;5' -/4.(/;3' 2!3'&4>*(' &.' .2*' &((/>&4-*' /,' .2*' 30!./(3' A2!-2' !3' 1!3"' %7;&5*1' ./A&(13' 2! 6 3*;,' &41' 2!3' * 6 ./!/4' /4' 6**.!4>' *4*;/7*' *0.' 1&5' .2*' 32//.!4>' 6&.-2' .&D*3' 7;&-*' 2!3' !4=/;=*3' 32//.!4>' .2(/0>2' .2*' 2&41;*3' /,' .A*;=*' &0*3' A!.2' .2*' </A' /,' 0(5.03' 8> = 9' A2!-2' .2*';&..*(3' 3/4' 72!.03' 2&1' /4-*' 7(*3*4.*1' ./' .2*' 5/04>' 1533*03' /4*' /,' .2*' 30!./(3' -&4'<*41' .2*' </A' &41' 3/' 1533*03' .&D*3' 2/;1' /,' !.' &41' <*413' !.' !4' &4' !43.&4.' .203' &-2!*=!4>' .2*' 6&3.*("32/.' 077/(.*1'<5' *;* 6&-203' 06**03' &41' .2*' 2*(136&4' 2,;**.!03' &41' A!.2' .2*' &!1!4>'7(*3*4-*' /,' .2*4*'2*'32//.3' ,!(3.' .2*' !43/;*4.' ,!.;4 03' &41' .2*4' .2*' /.2*('30!./(3' *' 4*0.'6&D*3'2!63*;,' D4/A4' ./' *4*;/7*' A2/' 2&3' 6*&4A2!;*' ,&;;*4' !4./' &' 1**7' 3;**7' &41' =!3!.3' 2!3' /;1' ,&.2*(' 4' .2*' 6*&4.!6*' .2*' (*;&.!=*3' /,' .2*' 60(1*(*1' 30!./(3'2&=*' .&D*4'07'&(63'<0.' .2*4*'!4' .2*' ,/(6' /,' *4. (' 8 0' <(!4>3' &</0.' &' (*-/4-!;!&.!/4' 2*' /4;5'2!4.' /,' 1533*03' *41'!4' /6*(' !3'!4' .2*'7(/72*-5'/,' !(*3!&3' .2&.' !4' &' -&;6' /;1' >*' &' 7*&-*,0;' 1*&.2' A!;;' -/6*' 07/4' 2!6',(/6' .2*' 3*& 4' ;&.*(' 7/*.(5' *; >/403' .2*' 3/4' /,' 1533*03' <5' !(-*' !3' 3*4.',/(.2' <5' 2!3' 6/.2*(' ./' 3**D' /0.' 2!3' ,&.2*(' *' ;&413' &.' .2&-&'&41'7;041*(3'.2*'!3;&41' 1533*03' 7(/-**13' ./' 6**.' 2!6'!3' A/041*1' <5' 2!6' A!.2' &' 7/!3/4/03' 3.!4>"(&5' >!=*4' <5' !(-*' ./' 2*(' 3/4' &3' &' 37*&("7/!4.' &41' 1!*3' &' 7&!4,0;' 1*&.2' A2!-2'.203'-/6*3'H',(/6'.2*' 3*& I' 4' *;*>/403' 1!3-/=*(!4>' .2&.' 2*' 2&3' D!;;*1' 2!3' 6.2*(' 2*' -&((!*3' .2*' 1*&1' </15' 2/6*' A!.2' 2!6' ./>*.2*(' A!.2' *4*F ;/7*' &41' >;*6&-203' &41' .2*(*' .2*' ;&..*(' ;!=*' &' ;!,*' /,' !6 6/(.&;!.5' *;*6&-203' <*F -/6!4>' 203<&41' /,' !(*' &41' *;*>/403' /,' *4*;/7*' *3!1*3' *;*>/403' .2*' ;*>*41' ./;1' /,' .A/' 3/43' /,' 1533*03' <5' !(-*' 4&6*1' >(!03' &41' J.!403' A2/' A*(*' 3&!1' ./' 2&=*' (*!>4*1' /=*(' .2*' .(03-&43' *;*F >/403' !4' 7&(.!-0;&(' A&3' (*>&(1*1' <5' .2*' /6&43' &3' .2*' ,/041*(' /,' 03-,!;06' f =!1' A' !!!' T@g' &41' (3*4*3.*' f /(&-*' !!!' @T' Rg' 4';&.*(' .!6*3' .2*' &1=*4.0(*3' /,' 1533*03' A*(*'.(&43,*((*1' &3' &' A2/;*' ./' .2*' -/&3.'/,' .&;5' .2*' 7(/6/4./(5'/,' !(-*!' A&3' (*>&(1*1' &3' .2*' &</1*' /,' !(-*' /(6!3*' &3' .2*' -!.5'/,' .2*' &*3.(5>/4*3' *&(' 0((*4" .06' A&3' ,/ 41' .2*' !3;&41' /,' .2*' !(*43' 4*&(' &7*' -!4!06.2&.' /,' &;573/' A2!;*' 4*&(' ./' !-!;5' A*(*' .2*' !3;*' /,' /;03' -5;;& &41' 2&(5<1!3' &41' /4' .2*' !-!;!&4' 32/(*' .2*' 5-;/7*3' 1533*03' !3' >*4*(&;;5'(*7(*F 3*4.*1'&3'&'<*&(1*1'6 4'A*&(!4>'&'3*6!"/=&;' -&7';!D*' .2&.'/,'&' (**D'3&!;/(' # ',!>' $9 8 <503' ^!4>'/,' 7&(.&',&.2*(' /,' !7"' 7,!-//4' 541& (*?3' &41' -&(!03' <5' .2*' 5672' C.*!&' 2*' ,!(3.' /,' .2*3*' *07*;3' 2!3' <(*.2(*4' ,(/6' .2*!(' 2/6*' <0.' ,&;;3' A!.2' &;' 2!3' 3/43' !4' <&..;*' &>&!43.' *(-;*3' &41' *72*03'/,' `>?&" 07/4' .2!3' 541&(*/3' 8> 0 9' (*.0(43' &41' .&D*3' 7/33*33!/4' /,' 2!3' ,&.2*(3' (*&;6' -&(!03' A2/' (*6&!43' !4' -&6&4!&' <*-/6*3' <5' ,!;B-&3.*' /(' 8&-F -/(1!4>' ./' &4/.2*(' &--/04.9' <5' .2*' &!&1' *(!</*&' ,&.2*(' /,' *4 ; 7*' .2*' A!,*' /,' 1533*03 ,,!-03' &6 ' 2*' 1!4!4>"(//6' /,' &' /6&4'1A*;;!4>"2/03*' & ' /) 8 1!703' G /4' /,' &!03' 1*3-*41&4.' /,' &1603' .2(/0>2' 2!3' 7&.*(4&;' >(&41,&.2*(' &<1&-03' &41' 2!3' >(*&.">(&41,&.2*(' ?;5"' 1 (03' --/(1!4>' ./' ' W ' O!' @U$"' @RNg' 2*B'D!;;3' 2!3' ,&.2*(' &41' 6&((!*3' 2!3' 6/.2*(' 7!-&3.*'8!4';&.*(' &--/04.3' ^-&3.*9" .2*' >/13' 2/A*=*(' !6 6*1!&.*;5'-&03*' .2*' 6!31**1' ./' <*' D4/A4' &41' 7!-&3.*' 2&4>3' 2*(3*;,' 8 1!703' 2/A*=*(' (0;*3' /4' !4' 2*<*3' 2&04.*1' A!.2' 6&45' 30,,*(!4>3' <5' .2*' =*4>*,0;' 37!(!.' /,' 2!3' 6/.2*(' /6*(' &;3/' 6*4.!/43'.2*',04*(&;' >&6*3' -*;*<(&.*1' !4' 2!3' 2/4/0(' f!L' OO!!!' ?UTg' <0.' 1/*3' 4/.' .*;;' /,' .2*' <!(.2' /,' 2!3' 3/43' &41' .2*' >(/0413' /,' .2*!(',*01' --/(1!4>' ./' .2*' &4-!*4.' &9 ' /,' !43*.2/4' 8 1!703' &,.*(' ;/-&3.*3'1*&.2'6&((!*3' 0(5>&4*!&'A2*4-*' 37(&4>'2!3'3/43n .?/-;&3'&41' ;54!-*3'&41' 2!3'1&0>2.*(3' 4.;>V4`'&41' 36*4*'f &43' !O' V $$g' --/(1!4>'./' .2*' &4-!*4.';*>*41' 1!7003-0(3*3'2!3'3/43'*!.2*(' <*-&03*' ;/5"' 4!-*3'2&1'3*.'<*,/(*'2!6'&.'.2*' <&4:0*.' .2*' .&<;*' &41' >/<;*.'A2!-2' &1603' &41' &!03' 2&1'03*1'8A2!-2'2*' (*>&(1*1'&3'&4'&..*67.' ./' (*6!41' 2!6'/,' 2!3' .(&43>(*33!/49' /(' <*F -&03*' .2*5'2&1' !4&1=*(.*4.;5'3*4.' 2!6' .2*' 2&04-2"</4*' /,' &' =!-.!6' !43.*&1' /,' .2*' 32/0;1*("</4* 4' .2*' 2&413' /,' .2*' 1 " ' *37*-!&;;5' /,' ! 3-25;03' &41' ,!72,!-;*3' 8!4' .2*' $9 ' +: " " ' .2*' ;*>*41' 2&3' <**4' -2&4>*1' !4./' .2*' ,/;;/A!4>',/(6' &!03' 203<&41' /,' ;/-&3.*' 1&0>2.*(' /,' 4/*-*03' &41' 3!3.*(' /,' (??4' 2&3' &' -0(3*' (*3.!4>' /4' 2!6' !4' -/43*:0*4-*' /,' 3/6*' 6!31**1' *' !3' ./;1' <5' .2*' /(&-;*' /,' 7/;;/' .2&.' 2*' A!;;' 1!*' <5' .2*' 2&41' /,' 2!3' 3/4' 2*4' &' 3/4' !3' <6' ./' 2!6' 2*' &--/(1!4>;5'/(1*(3' &' 3;&=*' ./'*07/3*' 2!6' A!.2' 2!3',**.' 7!*(-*1' 07/4' !.23*(/4' 2*' 3;&=*' -/43!>43' .2*' -2!;1' ./' .2*' -&(*' /,' &' 32*72*(1' <3;/4>!4>' ./' .2*' D!4>' /,'

G /(!4.2 ;B<43 &41 2 .&D*3 !. ./ 2!3 6&3.*(2 2/5 A2/ 1*(!=*3 .2 4&6 X 1!703 8 A*;;,//.9 ,(/6 2!3 3A/;;*4 ,**. !3 &1/7.*1 <5 .2 -2!;1;*33 /;5<43 &41 !;;3 A!, ` (</*& !4 7;&- /, /,,37(!4> /, ,2*!(/A4 4 (*&-2!4> 6&42//1 2 !3 (*7(/&-2*1 10(!4> & &(/03&; A!.2 4/. <*!4> .2 3/4 /, 2!3 7(*30 6 7.!= 7&(*4.3 &41 <*.&D*3 2!6 3*;, A!.2/0. .2*!(D4/A ;*1> ./ *;72! !4 /(1*(./ ,!41 /0. .2 .(0.2 2 .*((!<;*(*37/43 /, .2 /(&-;* ./ .2 *,,*-. .2&. 2 A!;; 3;&5 2!3 /A4 ,&.2*(&41 .2*4 <*>*. -2!;1(*4 !4 A*1;/-D A!.2 2!3 6/.2*(-&03*3 2!6 ./ &=/!1 % /(!4.2 . .2 7;&-* !4 2/-!3 A2*(.2 /(&1 ,(/6 *;72! ./ &0;!3 ;*&=*3 .2 /&1 ./ 2*<*3 2 !3 6*. <5 2!3 (*&, ,&.2*(A2/ !3 /4 &K/0(4*5 ./ *;72! ./ :0*3.!/4 .2 >/1 -/4-*(4!4> .2 1*=&3.&.!/4 /, 2!3 ;&41 <5 .2 72!40 3 8 1!7.3 A!;; 4/. G6/=* &3!1* & :0&((*; &(!3*3 &41 2 D!;;3 <!3 ,&.2*(./>*.2*(A!.2 2!3 &..*41&4.3 "/4 /, A2/6 &;/4 *3-&7*3 *7(/-**13 ./ 2*<*3 &41 .2*(,(**3 .2 -!.5 ,(/6 !.3 7;&>0 <5 3/;=!4> .2 72!40 3 (!11;* &3 &(*A&(1 2 (*-*!=*3 ,(/6 (*/4 .2 1/6!4!/4 /, 2*<*3 &41 .2 ;&.* D!4> 3 A!1/A ;/-&3.* ,/(&A!,* &41 .2 ;&..*(<*&(3 2!6 ,/0(-2!;1(*4 8>!=*4 <5 .2 %/;1*(65.2 ./ 0(5>J4*!&9B *&(3 &,.*(F A&(13 ,&!;0(* /, -(/73 &41 7*3.!;*4-* -/6* G07/4 2*<*3 &41 .2 /(&-;* 7(/6!3*3 ;!<*F (&.!/4 ,(/6 .2 1!3&3.*(/4;5 !, .2 60(1*(/, &!03 <* (*:0!.*1 <5B.2 (30;. /, 8 1!703 G*&>*(*41*&=/0(3 ./ !1*4.!,5 .2!3 7*(3/4 !3 .2 1!3-/=*(5 /, .2 2/(((/(3 A2!-2 2 2&3 G04-/43-!/03;5 7*(7*.(&.*1 ;/-&3.* 2&4>3 2*(3*;, !4 1*37&!(&41 8 1!703 70.3 /0. 2!3 /A4 *5*3 *7/3*1 ,(/6 2!3 .2(/4* &41 !67(!3/4*1 &. 2*<*3 <5 2!3 3/43 ./ %-/4-*&; 2!3 32&6* ,(/6 6*4 3 *5*3 /(8&-F -/(1!4> ./ &4/.2*(&--/04.9 1(!=*4 <5 .2*6 !4./ <&4!326*4. A2!.2*(2!3 1&0>2.*(3 &--/67&45 2!6 2 7(/4/04-*3 &>&!43. 2!3 3/43 &-0(3* ./ .2* *,,*-. .2&. .2*5 32&;; G1211* .2*!(!42*(!.&4-* A!.2 *&-2 /.2*(<5 6*&43 /, .2 3A/(1 &-0(3* A2!-2 !3 ,0;"% ,!;;*1 A!.2 &A,0;* *0&-.4*33 # $ + @ A $ ' !3 >(&=* A&3 &,.*(A&(13 32/A4 &. .2* G=!;;&>* /, .*/403 /4 .2* </(1*(3 /, ..!-& &41 6/.!& !4 .2* 3&4-.0&(5 /, *6*.*(&41 A/(32!7 1/4* ./ 2!6 &3 ./ & 2*(/ .2*43 .// !4 & 3&-(*1 1*6*34* /, .2* (!45*3 <*.A**4 .2* (* 7&>03 &41 .2* -(7 ; 3 A& & 6/406*4. ./ 8 1!703 A2/3* </4*3 A*(* 3077/3*1 ./ 2&=* <**4 <(/0>2. 2!.2*(,(/6 2*<*3 [/72/-;*3 !4 2!3 &9 " ,/;;/A3 &4/.2*(;*>*41 * (*7(*3*4.3 2!6 &3 -/6!4> ./ .2* ..!-1*6* / /403 &. .2* <!11!4> / 7/;;/ &41 &3 ,!41!4> .2*(* !4 .2* 3&4-F .0&(5/, .2* 4/A 7(/7!.!&.*1 06*4,1*3 .2* ;/4>*1",/(7*&-* /, .2* >(&=* !3 </4*3 .2* 7;&-* /, <0(!&; /, A2!-2 A&3 D4/A4 ./ 4/4*&(* &7(*-!/03 .(*&30(* ,/(.2* -/04.(5 ./ >0&(1!., (/6 2/3.!;* !4=&3!/43 ,,!4* 3 =!4.4*(9 ^!4>/, &;51/4 !4 ./;!& .2* 2!;;3 /, A2!-2 2* GA&3 .2* ,!(3. ./7;&4. A!.2 .2* =!4* (*-*!=*1 ,(/6 !/45303 * A&3 3/4 /, /(.2*03 /(/(.2&/4 &41 </(.2*(/, >(!03 &41 ;&3* <5 ;.2**&1&0>2.*(/, ;!*3.!03 2* <*-&6* .2* ,&.2*(/, 51*03 *;*&>*(&41 * 4!(& 9 /$ " 2*/4-* ,/(>/. (.*6!3 !4 &3&-(!,!-* 32* 3*4. .2* &;51/4!&4</&(A2!-2 (&=&>B .2* -/04.(5 &41 *=*4 &,.*(!.3 3;&0>2.*(!4 .2* ,&6/03 &;51/4!&4 04. /--&3!/4*1 .2* 1*&.2 /, *;*&>*(8: 09 (/6 .2* 7;/.3 /, 2!3 <(/.2*(*;&3 2* 2&1 <**4 1*;!=*(*1 <5 $#51*03 .2(/0>2 .2* 60(1*(/, *;&3 &41 2!3 3/43 <0. &,.*(!.2*1&.23 /, 51*03 &41 *;*&>*(2!3 /.2*(<(/.2*(>(!13 &41 .2* 3/43 /, .2&.<(/.2*(1*7(!=*1 2!6 /, 2!3 .2(/4* &41 -&3. 2!6 !4./ 7(!3/4 !3 >(&413/4 !/6 1*3 2/A*= (*=*4>*1 2!6 A!.2 .2* &!1 /, ;-63*/4 ./ A2/6 2* 2&1 /4-* >!=*4 2/37!.&<;** 4.*(.&!46*4. &41 A2/ A&3 1*3!(/03 /, .&D!4>8 4*03 A!.2 2!6 ./ (>/3 ,.*(2* 2&1 >!=*4 /=*(.2* .2(/4* /, 8K&;51/4 ./ 2!3 3/4"!4";&A 41(3*" 6/4 A2/3* 3/4 2 &3 !4 /6*(%' !!? Rg ;*&13 .2* ./;!&43 ./ (/5 0. .2* .A/ 3/43 /, >(!03 A2/ 2&=* *3-&7*1 1*&.2 ;!* !4 A&!. ,/(2!6 !4 (-&1!& &41 .2*(* 3;&5 .2* /;1 6&4 ! 6 1*3 -&((!*3 2!3 </15 ./ (>/3 &41 1*7/3!.3 !.' !4 .2* -!.5 A2!-2 &,.*(2!6 A&3 -&;;*1 8 4"?* 2!;* !4 /6*(8 4*03 !3 1*&1 <*,/(* .2* *07*F 1!.!/4 ./ (/5 ;&.*(65.2/;/>5 (*7(*3*4.3 2!6 &3 30(=!=!4> .2* (/K&4 &(' &41 &3 (*3./(*1 ./ 2!3 D!4>1/6 <5 !/6*1*3 /4 .2* ;&..*(3 ,;!>2. ,(/6 (>/3 8 416D;;3 /4 /, (*3 &41 .2* ;*!&1 .*(7* D!4> /, !3& !4 ;!3 ,&.2*(/, !7711&6;& * *41*&=/0(*1 ./ 7(*=*4. 2!3 1&0>2.*(3 6&((!&>* *!.2*(<*-&03* 2* ;/=*1 2*(2!63*;, /(<*-&03* &4 /(&-;* 2&1 7(*1!-.*1 2!3 1*&.2 !4 .2* *=*4. /, 2*(6&((!&>* 4 -/43*:0*4-* /, .2!3 2* !6F 7/3*1 07/4 2*(30!./(3 .2* -/41!./4 .2&. .2*5 603. -/4.*41 A!.2 2!6 !4 &(&-* ,(/6 !3& ./ .2* &;.&(/, 3*!1/4 /4 .2* /(!4.2!&4 !3.2 6 03 !, 2* /=*(./(D* .2*6 A!.2 2!3 2/(3*3 A2!-2 A*(* &3 3A!, .&3 .2* A!413 2* .(&43,!0*1 .2*6 A!.2 2!3 37*&(

' 2&1' &;(&15' 3;&!4' .2!(.**4' 8/(' &--/(1!4>' ./' &4/.2*(' &--/04.' *!>2.**4' 30!./(3' !4' .2!3' A&5' A2*4' *;/73' &((!=*1' *;/B' <(!<*1' 5(.:;03' .2*' -2&(!/.**(' /,')4/6&03' 5(.!;03' &--/(1!4>;5' *!.2*(' 4*>;*-.*1' ./' !43*(.' .2*' ;!4-2"7!43' !4' .2*' -2&(!/."A2**;3' /(' 30<3.!.0.*1' A&0*4' /4*3' ,/(' .2*6' &41' *;/73' <5' .2*' 2*;7' /,' .2*' 2/(3*3' A2!-2' /3*!1/4' 7(*3*4.*1' ./' 2!6' 30--**1*1' !4' 1*,*&.!4>' 8 4/6&03' 8 4/6&43' 1!*1' /,' .2*'' ,&;,' ,(/6' 2!3' -2&(!/.' &--/(1!4>' ./' &4/.2*(' 3./(5' 2*' -/6 6!..*1' 30!-!1*' #

8 0V4*' '456 72' /,' 6/04.' 1B' <(!1*' /,' &(!3' <*,/(*' 2*' -&((!*1',' *;*4' 4' (*3*4.F 6*4.' &.' 2*(';/=*(3',&!.2;*334*33' 32*' (*,03*1' ./' 2*;7' 2!6' A2*4' 2*' A&3' 6/(.&;;5' A/041*1' &41' !4' 2*(' (*6/(3*' &.' 2*(' (*,03&;' *41*1' <5' 2&4>!4>' 2*(3*;,'

((#O#1$%' ((#O#1$ 3%*&9' 17#%*'1*&% ,' &;;' .2*' /,,!-!&;' 353.*63' *3.&<;!32*1' &6/4>' .2*' (**D3' .2&.' !4' =/>0*' &6/4>' .2*' .2*4!&43' !3' .2*' <*3.' D4/A4' ./' 3' 2*' :0&;!,!-&.!/43' ,/(' 70<;!-' /,,!-*' &.' .2*43' A*(*' >*40!4*' .2*4!&4' 1*3-*4.' <;&6*;*33' ;!,*' &41' .2*' ,0;;' 7/33*33!/4' /,' -!=!-' (!>2.3' ,' (*;!>!/03' 10.!*3' A*(*' &..&-2*1' ./' .2*' /,,!-*' 7253!-&;' A*&D4*33' A&3' &' 1!3:0&;!F ,!-&.!/4' /' /4*' A&3' &;;/A*1' ./' 2/;1' .A/' /,,!-*3' &.' &' .!6*' /(' .2*' 3&6*' /,,!-*' .A!-*' /(' ,/(' &' ;/4>*(' 7*(!/1' .2&4' &' 5*&(' 2*' 4/6!4&.!/4' A&3' 6&1*' !4' 3/6*' -&3*3' <5' *;*-.!/4' !4' /.2*(3' <5' .2*' 1(&A!4>' /,' ;/.3' ;*-.!/4' .//D' 7;&-*' <5' 32/A' /,' 2&413' !4' .2*' % D ' /(' /4' .2*' 6&41&.*' /,' .2*' ' !4' .2*' &33*6<;!*3' /,' .2*' 3*=*(&;' .(!<*3' & ' " ' ((' 4' *;*-.!/4' <5';/.' f/4' .2*' !4.(/10-.!/4' /,' A2!-2' ' /.*' /4' 7' UN?g' .2*' 7(/-**1!4>' A&3' &3' ,/;;/A3' 2*' +((' 7(*3!1*1' !4' .2*' .*67;*' /,' 2*3*03' & ' & ' A/' </0*3' /(' =*33*;3' A*(*' 7;&-*1' .2*(*' /4*' -/4.&!4!4>' A2!.*' &41' -/;/0(*1' <*&43' &41' .2*' /.2*(' .2*' 4&6*3' /,' .2*' -&41!1&.*3' A(!..*4' /4' .&<;*.3' ' .&<;*.' &41' &' <*&4' A*(*' .&D*4' /0.' &.' .2*' 3&6*' .!6*' &41' .2*' -&41!1&.*' A2/3*' 4&6*' -&6*' /0.' A!.2' &' A2!.*' <*&4' A&3' *;*-.*1' *,/(*' *4.*(!4>' /4' 2!3' /,,!-*' 8A2*.2*(' 2*' 2&1' <**4' -2/3*4' <5' ;/.' /(' *;*-.!/49' *=*(5' /,,!-!&;' 2&1' ./' 041*(>/' &4' *0&6!4&.!/4' /,' 2!3' :0&;!,!-&F .!/43' & ' ,' .2*' (*30;.' A&3' 04,&=/0(&<;*' &' 30<3.!.0.*' A&3' &77/!4.*1' *!.2*(' <5' &' 3!60;.&4*/03' -&3.!4>' /,' ;/.3' !4' .2*' 6&44*(' 1*3-(!<*1' /(' 8!,' .2*' /,,!-*' A&3' *;*-.!=*9' <5' &' 4*A' *;*-.!/4' 0(!4>' .2*!(' .*(6' /,' /,,!-*' .2*' /,,!-!&;3' A*(*' 30<(*-.' ./' -/43.&4.' 307*(=!3!/4' &41' A*(*' ;!&<;*' ./' 3037*43!/4' /(' 1*7/3!.!/4' <5' .2*' --;*3!&' .2(/0>2' .2*' 7(/-**1!4>' -&;;*1' (2

" 8&' 4*A' 32/A' /,' 2&4139' 4' .2*' *07!F (&.!/4' /,' 213' .*(6'*=*(5' /,,!-!&;' A&3' </041' ./' >!=*' &4' &--/04.' /,' 2!63*;,' & (:" ' 2*' (*>0;&("' /,,!-!&;3' B 2&1' *&-2' &' 7;&-*' /,' /,,!-*' & (" ' ' .,!*' /,,!-!&;3' ,/(6*1' &' /-!*.5' &3' !4' .2*' 6&K/(!.5' /,' -&3*3' .2*" <03!4*33' A&3' 83/' ,&(' &3' K/!4.' &16!4!3.(&.!/4' A&3' 7/33!<;*9' 1!3.(!<0.*1' &6/4>' .2*' 6*6F <*(3' ,' .2*' 3/-!*.5' &77*&(*1' !4' 70<;!-' &3' &' A2/;*' /4*' /,' .2*' 6*6<*(3' 7(*3!1*1' &3' ! " ' & ' * ' 4' .2*' -&3*3' &.';&A' A2!-2' -&6*' 041*(' .2*!('K0(!31!-.!/4' !.' A&3' !4-06<*4.' /4' .2*' /,,!-!&;3' ./' 6&D*' .2*' 4*-*33&(5' &((&4>*6*4.3' ,/(' .2*' .(!&;' &41' ./' 7(*3!1*' !4' -/0(.' 2*5' (*-*!=*1' 4/3&;&(5' <0.' .2*!(' 6*&;3' A*(*' 7(/=!1*1' &.' .2*' 70<;!-' *07*43*' *!.2*(' &.' .2*!(' (*3!F 1*4-*3' /(' !4' .2*' , : " ' 2*' *6<;*6' /,' /,,!-*' A&3' &' >&(;&41' /,' 65(.;*' 2*' /,,*4-*' /,' !430;.!4>' &4' /,,!-!&;' !4' .2*' 7*(F ,/(6&4-*' /,' 2!3' 10.5' A&3' 704!32&<;*' A!.D' ' & ' ' ' (&!' (' * & ' & 7' " ' ! ' 9' $ ' & 2*(*' A*(*' 406*(/03' &..*41&4.3' /4' .2*' /,,!-!&;3' &. : ' A2/' (*-*!=*1' &' 3&;&(5' &41' .2*!(' 6*&;3' &.' .2*' 70<;!-' *07*43*' 0-2' A*(*' .2*' ;*(D3' &1 ' &41' 2*(&;13' & : ' /(' 7&(.&'3*' ' ,/(' /6*'0 ' ((' (

>5>*3' 8 >B>039' 4*' /,' .2*' /*/.!&4' &0./-2.2/4*3' /(' &</(!>!4*3' 3/4' /,' -*/.03' /(' 8&--/(1!4>' ./' &4/.2*(' &--/04.9' /,' /3*!F 1/4' *' A&3' D!4>' /,' .2*' *-.*4 3' .2*' /;1*3.' !42&<!.&4.3' /,' /*/.!&' A2!-2' A&3' =!3!.*1' 10(!4>' 2!3' (*!>4' <5' &4' !4041&.!/4' /,' &D*' /7&;3' 4&6*1' &,.*(' 2!6' .2*' >5>!&4' ,;//1

!-; 3' /4' /,' 4. 72 .*3' >(&413/4' /,' ;&6703',&.2*(' /,' 672!&(&03' *' ,*:;' &3' &' -/67&4!/4' /,' *(-;*3' !4' .2*' <&..;*' &>&!43.' & 6 1/4' /,' (/5

!;' A&3' *(5' *0.*43!=*;5' 03*1' !4' &4-!*4.' .!6*3' 7&(.' ,(/6' !.3' 03*' &3' &4' &(.!-;*' /,' ,//1' &41' ,/(' <0(4!4>' !4' ;&673' !.' 3*(=*1' ./' &4/!4.' .2*' </15' &,.*(' .2*' <&.2' &41' !4' .2*' 2*' /!;' 6/3.'03*1' A&3' .2&.' /<.&!4*1'<5' 6*&43' /,' ;!=*' 7(*33*3',(/6' .2*' /;!=*' .(** ' A2!-2' 3**63' ./' 2&=*' <**4' .(&43F 7;&4.*1',(/!4' 5(!&' ./' (**-*' &41' .2*4-*' ./' .&;5' 2*' <*3.' /;!=*' /!;' 7(/10-*1' &6/4>' .2*' (**D' 3.&.*3' A&3' .2&.' /,' ..!-&*' 2*(*' .2*' /;!=*' .(**' A&3' >!,' /,' .2*' 4&.!/4&;' >/11*33' .2*4*' A2/' <5' 6*&43' /,' !.' 2&1' /<.&!4*1' .2*' =!-./(5' !4' 2*(' -/4.*3.

' /6*' A*(*' /4;5' &77/!4.*1'./' -&((5' /&.' 37*-!&;' 10.!*3' /4' 37*-!&;' /--&3!/03" .2*3*' A*(*' -&;;*1' 9

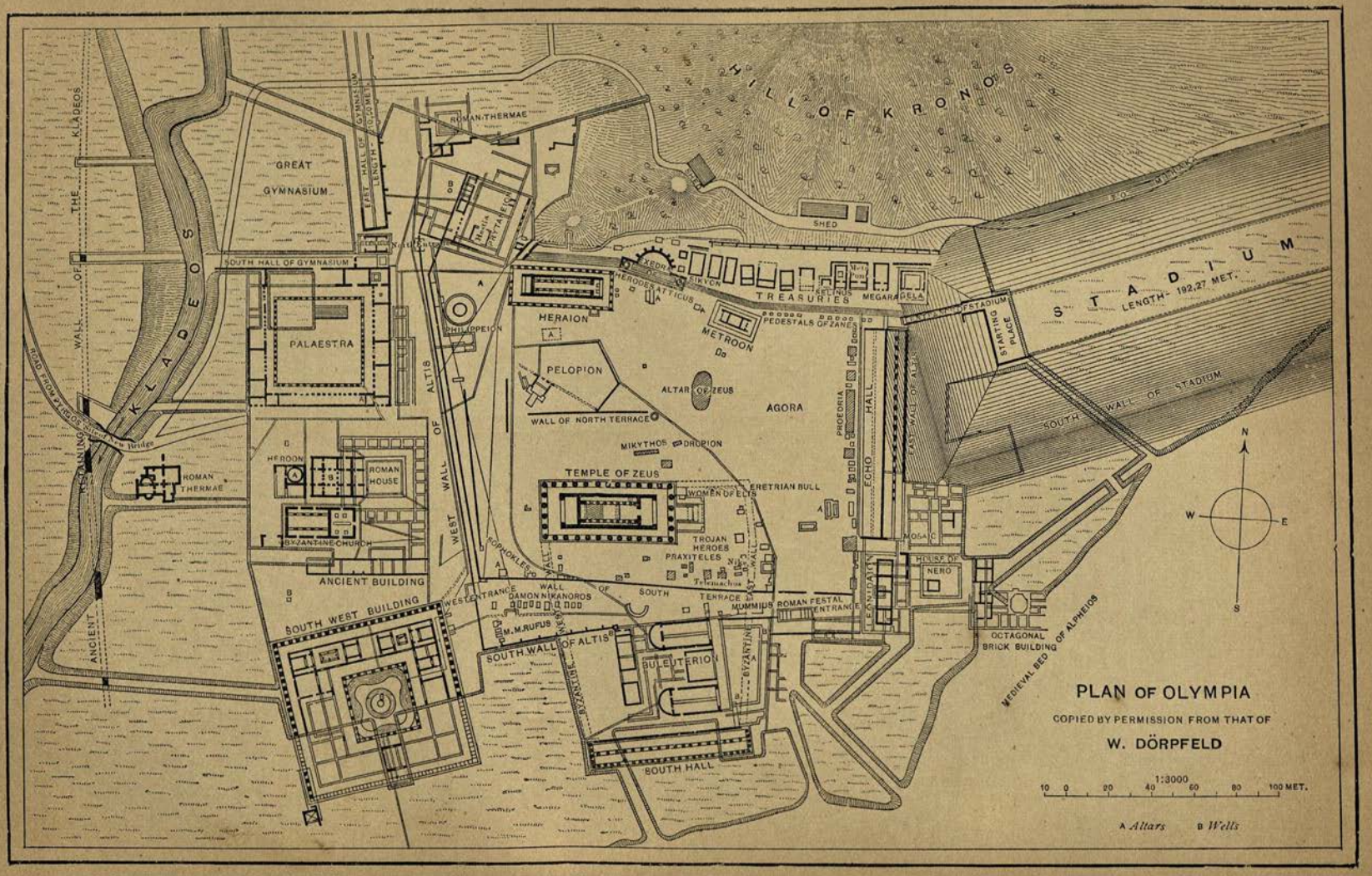
A!.2' 3*!1/4' ,/(' .2*' 7/33*33!/4' /,' .2*' -/04.(5' *(*'&;3/'.2*'/;!=*'.(*'A&3'041*('.2*' 37*-!&;' 7(/.*-.!/4'/,' .2*' .&.*' 4/' /4*' A&3'&;;/A*1' ./' -0.' 1/A4' /;!=*'.(**3' /4' 2!3' /A4' 7;/.' /,' ;&41' *0-*7.',/(' 34*-!,!*1' 70(F 7/3*3' &41' .2*4' /4;5' &' 37*-!,!*1' 406<*(' /(*/=*(' 6&45' /;!=*' .(**3' 3.&41!4>' /4' 7(!F =&.*'>(/041'A*(*'(*>&(1*1' &3' .2*' 7((/7*(.5' /,' .2*' >/11*33' /,' .2*' .&.*' &41' !.' A&3' .2*(*,/(*' ,/(<!11*4' /4' 7&!4' /,' 1*&.2' ./' -0.' .2*6' 1/A4' 2*5' A*(*' 041*(' .2*' 37*-!&;' -/4.(/;'/,' .2*' (*/7&>03' A2!-2' 2&1' .2*6' !437*-.*1' ,(/6' .!6*' ./' .!6*' <5' -*(.&!4' /, -!&;3' &41' .2*5' A*(*',&(6*1' /0.' <5' .2*' .&.*' f 53!&3' '!Og' K &(.'/,' .2*' /!;' .203' /<.&!4*1' 2&1' ./' <*' 3/;1' <5' .2*',&(6*(' ./' .2*' .&.*' &.' &',!0*1' 7(!-*' .2!3' A&3' /4;5' 03*1',/(',*3.!=*' 70(7/3*3' *37*-!&;;5' ./' <*' 1!3F .(!<0.*1' !4' 7(!Q*3' ./' .2*' =!-./(3' !4' .2*' &4'' &.2*4&!-' -/4.*3.3' f !41&(' > 'O' VW

4' .&;5' .2*' /;!=*' .(**' A2!-2' 37(*&1' .2*4-*' ./' (&4-*' &41' 7&!4' >(*A'3/' A*;;' .2&.' .2*' .&;!&4' /!;' *37*-!&;;5',(/6' .2*' 4*!>2</0(F 2//1' /,' .2*' /0.2' .&;!&4' -!.!*3' &,(06' &41' &(*4.06' &41' .2&.',(/6' .2*' &<!4*' -/04.(5' A&3' -/43!1*(*1' .2*',!4*3.' !4' .2*' A/(;1' &41' 3/' 6*.' A!.2' &' (*&15' 3&;*' &<(/&1' 2*' <*3.' D!41' A&3' -/43!1*(*1' ./' <*' /!;',(/6' 04(!7*' /;!=*3' *37*-!&;;5' .2*',!(3.',(/6' .2*' 7(*33' f ;!45' >' 'O=' $" Cg' 2*' 6&40F ,&-.0(*' /,',(&>(&4.' /!;3' &41' /!4.6*4.3' /,' A2!-2' .2*' &4-!*4.3' 6&1*' &',&(' 6/(*' *0.*4F 3!=*' 03*' .2&4' /0(3*;=*3' A&3'=*(5'!67/(.&4.' 2*(*' &3' &'=*(5';&(>*' 406<*(' /,' 7(*7&(&F .!/43' /,' .2!3' D!41' A2!-2' A*(*' 03*1',/(' *6<(/-&.!/43' /,' .2*' 7*(3/4' 7/6&1*3' ,/(' .2*' 2&!(' /,' .2*' 2*&1' &41' <*&(1',/(' 7*(F ,06!4>' .2*1(*33'<&.2"A&.*(' &41' .2*' ;!D*' 2*5' A*(*' 7(*7&(*1'3/6*'<5'&'-/;1'6*.2/1' 3/6*' <5' &' 2/.' <5' 6!0!4>' /!;3' 7(*33*1',/(' .2*' 6/3.'7&(.',(/6',(0!.3' 0-2' &3' .2*' /!;' /,' /;!=*3' 40.3' &41' &;6/413' A!.2' .2*'=/;&.!;*' /!;3' 1*(!=*1',(/6' 4&.!=*' /(' /(!*4.&;' =*>*F .&<;*' 30<3.&4-*3' 2*' 6/3.'*07*43!=*' D!413' A*(*'<(/0>2.',(/6' .2*' &3.' .2*' <!(.27;&-*' /,' .2!*' 6&40,&-.0(*' &3',(' *0&67;*' .2*' 60-2"7(!Q*1" " ' 7(*33*1',(/6' .2*',;/A*(3' /,' .2*' 41!4' &41' (&<!4' >(&33" ' f ;!45' >' 'O!!!' $"@Vg' /(' 7(*F 3*(=!4>' .2*6'=*33*;3'/,'3./4*'A*(*'7(*,*((*1'*37*-!&;;5' .2/3*' /,' &;&<&3.*(' W ' ~' $Tg' /' 6**.' .2*' 1*6&41'=&3.' 7*(,06*' 6&40,&-F ./(!*3' *0!3.*1'*=*(5A2*(*'!4' &<041&4-*

;;*43' ^!4>' /,' .2*' /-(!&43',&.2*(' /,' %.2*' ;*33*(' K&O' # '$9

;*4' '65.2!-&;'7/*./,' 5-!&'<*;/4>!4>' .'*&(;5' (**D' .!6*3'3.&41!4>'!4'-/44*0!/4' A!.2' .2*' A/(32!7' /,' 7/;;/' !4' *;?3' &41' (*7(*3*4.*1' &3' 2&=!4>' -/67/3*1' .2*' ,!(3.' 2564 3',/(' .2*' *;!&43' 2*' ;*>*41' A2!-2' A&3' *37*-!&;;5' &..(!<0.*1' ./' 2!6' A&3' .2&.' /,' 7/;;/3'3/K/0(4'&6/4>'.2*' 57*(</(*&43 ;!>&(*2;&'8H 0;*' /,' .2*' *AI9' 2*' 4&6*' >!=*4' !4' (**D' A(!.*(3' ./' .2&.',/(6' /,' -/43.!.0.!/4' A2*(*' &' 7/(.!/4' /,' .2*' -/6604!.5' 7(!=!;*>*1' *!.2*(' <5' (*&3/4' /,' 4/<!;!.5' /,' <!(.2' /(' /,' A*&;.2' &(*' *0-;0F 3!=*;5' /(' &.';*&3.'!4' 7(*,*(*4-*' ./' .2*(3'!4' 7/33*33!/4',/'7/A*(' 2*',/(6*('-&3*' !3' &4' *0&67;*' /,' &4'&<3/;0.*' 1*37/.!36' .2*';&..*(' (*30;.*1' A2*(*' .2*' 6&>!3.(&-!*3' .2/0>2' ,!;;*1'*0-;03!=*;5',/6'.2*'7(!=!;*>*1'-;&33*3' 4*=*(.2*;*33' 1*7*41*1' /4' 7/70;&('*;*-.!/4' /('A2*(*' .2*' 6&33' /,' .2*' 7*/7;*' 7/33*33*1'&' 32&(*' !4' 1*;!<*(&.!/4' /(' !4' .2*' 1(&A!4>' 07' /,' 1*-(**3' A2!;*' ./' .2*' 7(!=!;*>*1' </15' A&3'(*3*(=*1' .2*'(!>2.'/,' 6&D!4>' 7(/7/3&;3' /4=/D!4>' &41' 7(*3!1!4>' /=*(' .2*' &33*6F <;!*3 "&41' (&.!,5!4>' .2*' 1*-(**3 ;567!&1'8 (' : 2' 7*(!/1'/,',/0(' 5*&(3',/6'/4*'-*;*<(&.!/4'/,' .2*' ;567!&4' >&6*3'& ' 5 *& ' @ & ' ./' &4/.2*(' 2*' ;567!&13'A*(*'-/04.*1',/6'.2*'=!-F ./(5'/,' 2(/*<03'8UU?' ' " !' .2*' ;&3.' .2*' @R (1' *41*1' TC' ' A!.2' .2*' &</;!.1/4' /,' .2*' ;567!&4' >&6*3' 2!3' 6*.2/1' /,' (*-D/4!4>' 4*=*('7&33*1' !4./' *=*(51&5';!,*' <0.' !3' /,' !67/(.&4-*' !4&360-2' &3' .2(/0>2' .2*' 2!3./(!&4' !63*03' &</0.' @CN' ' (' !.' <*-&6*' .2*' /4*' >*4*(&;;5'03*1'<5'.2*' (**D' 2!3./(!&43 ;567!&4' &6*3' 8 (' : ' 2*' -2!*,' 4&.!/4&;',*3.!=&;' /,' .2*' (**D3' A2!-2' A&3'-*;*<(&.*1'!4'2/4/0('/,'L*03'&.' ;567!&' !4' .2*' *;/7/44*3!&4' 1!3.(!-.' !3!.!3' <*F ;/4>!4>' ./' .2*' ;*&43' &.' .2*' 7/!4.' A2*(*' .2*' ;&1*.;3' (043' !4./' .2*' ;72*23' 2*' !43.!.0.!/4' /,' .2!3' &4-!*4.' ,*3.!=&;' !3' 3/6*F .!6*3'(*,*((*1./' !303'.2*' 65.2!-&;',/041*(' /,' .2*' -!.5' !3&'A2!-2' A&3'&,.*(A&(13' 1*F 3.(/5*1' <5' .2*' ;*&43' &41' <*,/(*' A2/3*' >&.*3';&5' .2*' 3&4-.0&(5'/,'L*03*' 3/6*.!6*3' ./' *;/73' !4' A2/3*' 2/4/0(',04*(&;' >&6*3' A*(*' 2*;1' &.' .2!3' 7/!4.' /4' .2*' <&4D3' /,' .2*' ;72*03

2*3*' A*(*' (*3./(*1'!.'!3' &!1'<5' (&'' -;*3' A2/'!43.!.0.*1' .2*' (*>0;&(' /(1*(' /,' .2*' ,*3.!=&;' 2!3' /7!4!/4' 1!1' 4/.' <*-/6*' 0(F (*4.' 4.!;' .2*' /(!&4' .&.*3' *3.&<;!32*1' &,.*(' .2*' !6 6!>(&.!/4'/,' .2*' *(&-;!1)'!4./' .2*' *;/7/44*303' 2&1' <**4' &16!..*1' ./' &' 32&(*' !4' .2*' ,*3.!=&;' A2!-2' &3' /(!>!4&;;5' ,(*:0*4.*1' /4;5' <5' .2*' !3&.&43' &41' .2*!(' !6 6*1!&.*' 4*!>2</0(3' 2!3' &16!33!/4' 1&.*3',(/6' 5-0(>03'/,' 7&(.&' &41' 72!.03' /,' ;!3' A2/'&.' .2*' 1!(*-.!/4'/,' .2*' *;72!-' /(&-;*' (*3./(*1' .2*' /<;!=!/4' &41' *3.&<;!32*1' .2*


HILL OF KRONOS
GREAT GYMNASIUM
ROMAN THERMAE
EAST HALL OF GYMNASIUM
SOUTH HALL OF GYMNASIUM
THE KLADEOS
WALL OF KLADEOS
PALAESTRA
PHILIPPEION
ALTIS
WEST WALL OF ALTIS
HERAION
TREASURIES
HEROES ATTICUS
METROON
PEDESTALS OF ZANES
PELOPION
ALTAR OF ZEUS
AGORA
WALL OF NORTH TERRACE
MIKYTHOS
DROPION
TEMPLE OF ZEUS
ERETRIAN BULL
WOMEN OF ELIS
TROJAN HEROES
PRAXITELES
Telemachus
HEROON
ROMAN HOUSE
BYZANTINE CHURCH
ANCIENT BUILDING
SOUTH WEST BUILDING
WEST ENTRANCE
SOPHOKLES
WALL OF SOUTH TERRACE
DAMON NIKANOROS
M. M. RUFUS
SOUTH WALL OF ALTIS
BULEUTERION
BYZANTINE WALL
SOUTH HALL
ROMAN FESTAL ENTRANCE
MUMMIUS
EXHEDRA
HOUSE OF NERO
ECHO
PROEDRIA
HALL
EAST WALL OF ALTIS
STADIUM
LENGTH- 192.27 MET.
STARTING PLACE
SOUTH WALL OF STADIUM
SHED
ROAD FROM PYRGOS
ANCIENT
OCTAGONAL BRICK BUILDING
MEDIEVAL BED OF ALPHEIOS
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PLAN OF OLYMPIA
COPIED BY PERMISSION FROM THAT OF
W. DÖRPFELD
1:3000
10 0 20 40 60 80 100 MET.
A Altars B Wells

3&-(*1 (&-* /, /1 #L (A2!-2 !430(*1 &3&,* -/410-. &. .2* .!6* /, .2*G,*3.!=&;, /(; &;; 3.(&4>*(3 (*3/(.!4> .2!.2*(*=*4 .2(/0>2 2/3.!;* .*((!./(5 4 -/0(3* a .!6* .2* 6*6<*(32!7 *0.*41*1 !.3*;, ,0(.2*(/=*(&;; .2* *;;*4!-3.&.*3 !4 &41 /0. /, (**-** &41 .2*,*3.!=&;A&3 4/.; /4;5=!3!.*1 <5 7(!=&.* !41!=!10&;3 <0. &;3/ (*-*!=*1 3&-(*1 *4=/53 ,(/6 .2* 3*=*(&; 3.&.*3 2(/0>2 &;; .2* &33&0;.3 /, .!6*!. ;&3.*1 /4 *=*4 10(!4> .2* /6&4 (0; &41 A&3 4/.&</;!32*1 04.!; TC 041*(.2* (*!>4 /, 2 1113!03

! /6 .2* .!6* /, .2* &</=*"6*4.!/4*1 (*3./(&.!/4 <5 72!.03 &41 5-0(>03 !. A&3 & :0!4:0*44!&; -*;*<(&.!/4 .2&. !3 !. A&3 %2*;1 /4-* !4 *=*(5 /0(5*&(3 !4 6!1306" 6*(8 0;5./ 0>03.9 &</0. .2* <*>!44!4> /(*41 /, .2* (**D 5*&((*>0;&(&41 -/4.!40/03 ;!3. /, .2*=!-./(3 A&3 D*7. ,(/6 UU? A2*4 (/*<03 A/4 .2* (&-* !4 .2*

.2* .*67;*3 /, L*03 *(& # < " .2* /.2*(/, .2* /13 # ! &41 .2* 2/;5 !4-;/30(* /, *;/73 #, </ /"% <*3!1*3 & 60;.!.01* /, &;.&(3 -/43*-(&.*1 3/6* ./ >/13 &41 /6* ./ 2*(/*3 &41 & -/04.;*33 2/3. /, 1*1!-&./(5 /,,*(!4>3 &41 3.&.0*3 /, *=*(5 D!41 &6/4> .2*6 3/0.2",*&3. /, .2* .,*67;* /, L*03 .2* > 2* .*67;* /, L*03 A2!-2 A&3 <*>04 &</0. ?U@ <5 .2* ;*&4 !</ A&3 4/. -/67;*.*1 !4 !.3 6&!4 /0.;!4* 04.!; &</0. CVN . &3 & /(!- 2573*.2(&; <0!;1!4> 8. *! .2&1 4/ (//, /=*(.2* /(.*67;* 7(/7*(9 !. A&3 &;3/ 7*(!7.*(&; 8. *! .* - 30((/041*1 <5 &3!4>;* (/A /, -/;06439 . A&3 <0!;. /, .2* ;/-&; -/4-25;!,*(/03 ;!6*F 3./4* f-&;;*1 <5 &03&4!&3 =$N `@g 4 !.3 6/(* !32*1 7&(.3 !. A&3 /=*(;&!1! A!.2 ,!4* 3.0--/ >!=!4>. .2* &77*&(&4-* /, 6&(<;* &41 A&3 &;3/ (!-2;5 1*-/(&.*1 A!.2 -/;/0(. A&3 @$N ,**. !4 ;*4>.2 T$!4

.C $ $GP & 5 / 0 5 4 %$ 5 0 A] + % 8 /4.*3.<*.A**4 *;/73&41 8 0/0!343 9

8@9 F $ - & L " . 8 &..;*<*.A**4.<* *4.&4(3&41 &7;.<** 9

&41 A!.2 .2!3 5*&(<*>!43 .2* ;567!&1 (*-D/4!4> 7(*=&;*4. &6/4> .2* 2!3./(!&43 ,(/6 .2* .!6* /, !63*03 2* 10(&.!/4 /, .2* ,*3.!=&;A&3 !4 -/0(3* /, .!6* *0.*41*1 /&.;*&3. ,!=* 1&53

2* 7;&-* A2*(* .2* ,*3.!=&;A&3 -*;*F <(&.*1 A&3 .2* # ;&49 &(3 3&-(*1 7(*-!4-. &. .2* ,//. /, .2* 2!;; /, (/403 # " CN ,**.2!>2 2*7(*-!4-. A2!-2 A&3 &</0. U?N ,**.;/4> <5 VUN ,**.<(/&1 A&3 30(((/041*1 <5 &A&;;&3-(!<*1./ ,*(" -;*32&=!4>*4.(&4-*3 &. .2* &41 2* -*4.(* </.2 <5 7/3!.!/4 &41 <5 (*;!" B/03 &33/-!&.!/4 A&3 ,/(6*1 <5 .2* >(*&. 3&-(!,!-!&; N A2!-2 (/3* /4 &4 *;;!7.!-&; <&3* $@R ,**. !4 -!(-06,*(*4-* ./ & 2*!>2. /, @ ,**. &41 A&3 -/67/3*1 /, .2* &32*3 /, .2* =!-.!63 6!4>;*1 A!.2 .2* A&.*(/, .2* ;72*03 /041 !. A*(* >(/07*1 .2*,/0(6/3. !67/(.&4. 3&4-.0&(!*3

<(*&1.2 &41 ?V !4 2*!>2. 2* /0.*(2&;; 2&1 ?* -/;06 43 &;/4> !.3 <(*&1.2 &41 $ &;/4> !.3 ;*4>.2 8*&-2 C ,**.2!>29 A2!;* .2* !44*(2&;; 2&1 &1/0<;* (/A /, U -/;06 43 2* *&3.*(4 7*1!6*4. A&3 /--07!*1 <5 &((*F 7(*3*4.&.!/4 /, .2* -/4.*3 <*.A**4 ,*;/73 &41 4,*6 !03 A!.2 L*03 &3 .2* -*4.(* 8,!> $9 .2* A*3.*(4 <5 /4* /, .2* <&..;* <*.A**4 .2* *4.&0(3 &41 7!.2&* A!.2 7/;/ &3 -*4.(* 8,!> @9 2* /,(6*(A&3 1*3!>4*1 <5 .2* &;(*&15"6*4.!/4*1 3*/4!03 .2* ;&..*(<5 ;- 6,*4*3 /, .2*43

2* &--/67&45!4> -0.3 !41!-&* .2* ,!>0(*3 <*;/4>!4> ./ .2* .A/ 7*1!6*4.3 3/ ,&(&3 .2*!(,(&>6*4.&(5 7/(.!/43 A*(* (*-/=*(*1 !4 .2* *0-&=&.!/43 <*>04 <5 .2* *(6&43 !4 $RUV f 2!;* .2* /.*(6*./7*3 <*4*&.2 .2*3* 7*1!66!.3 2&1 4/ /(4&6*4.* *0-*7. & ;&(>* 7;&!4 </33 /4 *&-2 .A*;=* /.2*(6*./7*3 3-0;7.0(*1

GA!.2 (*;!*,3 03*1 ./ &1/(4 .2* /0.*(A&;;3 &.* *&-2 *41 /,* .2* /(.*67;* 7(/7*(3!0 =*(.2* 1//(/,* .2* " %&41 3!0 /=*(.2&.* /,* .2* (:;* /,* .2*3* 2&=* <**4 1!3-/=*(*1 ,/0(<5 .2* (*4-2 !4 $R@T &41 *!>2.* <5 .2* % *(6&43 !4 $RUV"T 2*!(30<*-.3 &(* .2* ;&</0(3 /,* *(&-;*3 2* <*3.* G7(*3*(=*1 /,* .2* 3*(!*3 &41 /4* /,* .2*6 A2!-2 &3 -/67&(*1 A!.2 .2* (*3. !3 &77&(*4.;5 .2* A/(D /,* &"6&.0(* &41 A*;;".(&!4*1 3-2//;* /,* 3-0;7.0(* !3 .2&.* (*7(*3*4.!4> *F (&-;*3 <*&(!4> .2* 2*&=*43 .;&3 3.&413 <5 /,!<(!4> ./ *(&-;*3 .2* &77;*3 /,* .2* *37*(!1*3 &41 /4 .2* /.2*(3!1* /4* /,* .2* 1&0>2.*(3 /,* .;&3 !3 ./0-2!4> .2* 2*(/3 <0(1*4 A!.2 2*(&(6 &3 .2/0>2 *41*&=/0(!4> ./ &!1 2!6 !4 303.&!4!4> !.8,!> 9g 4 .2* -2&6<*(&.* .2* A*3.*(4 *41 /,* ".2* 3./1 .2* >(*&.*3. A/(D /,* % (**D &(. A(/0>2.* !4 >/;1 &41 !=/(5 G<5 2!1!&3 # 0.3!1* .2* 3&-(*1 "!4-;/30(* .2/0>2 3.!;* !4 1!(*-. -/4" %4*0!/4 A!.2 !. A*(* ./ .2* A*3. .2* 6: " &41 ./ .2* *&3. .2* . " &41 .2* f 2* 2&3 <**4 A&32*1 &A&5 5 .2* *4-(/&-26*4.3 /,* .2* ;72*03 2* A2!-2 A&3 ?NN ;567!- ",**. !4 ;*4>.2 2&3 <**4 *0-&=&.*1 ./ 3!4 *0.*4.30,,!-!*4. ./ 1*.*(6!4* .2* ;*4>.2 /,* .2* 3!4>;* -/0(3* <*.A**4 ".2* 3.&(.!4>"7;&-* &41 .2* >/&;. /* <* $T@"@U 6*.(*3_? N"R$RCVNU 4>;!32 ,**. 2* ;567!- ,//.2*(*,/(* 6*&30(*1 " @NC /,* "& 6*.(*_$"NV$@NN ?* ,**. 2* 7&(&;;*;* >(//=*3 !4 .2* 3;&<3 /,* 3./4* &.* *&-2 *41 /,* ".2* 3.! 32/A .2* 37/.A2*(* .2* ,**. /,* .2* -/67*.!./(3 !4 ".2* ,//.(&-* A*(* 7;&4.*1 &. .2* 6/6*4. !6 6*1!&.*;5 "7(*-*1!4> .2* 3.&(. 2*(* !3 (//6 ,/(@N &. *!.2*(*41 3*7&(&.*1 ,(/6 /4* &4/.2*(<5 7/3.3 &. !4.*(=&;3 /,* ,/0(

8C9 ' ;567!-,**.,(/6 /4* &4/.2*(8,!> C9g 2* ,*3.!=&;-/43!3.*1 /,* .A/ 7&(.3!M 8$9g .2* 7(*3*4.&.!/4 /,* "1 -2!*,!5 /,* -/0(3* ./ L*03 <0. &;3/ ./ .2* /.2*(>/13 &41 2*(/*3 /4 .2* 7&(. /,* .2* 3&-(*1 *6<&33!*3 &41 /.2*(=!3!./(3 ./ .2* ,*&3. "&41 8@9 .2* " 4 .2* ,!(3. ;567!&1 .2* -/4.*3. -/43!3.*1 /,* &3!67;* 6&.-2 !4 ".2* 8(&-*"-/0(3*9 A2!-2 2&1 &;*4>.2 /,* &.(!,;* 6/(* .2&4 @$N 5&(13 2* (044*(3 ,&4 !4 2*&.3 /,* ,/0(&41 .2*4 .2* A!44*(3 !4 *&-2 2*&. -/6F 7*.*1 ./>*.2*(.2* ,!(3. !4 .2* ,!4&; 2*&. <*!4> 7(/-;&!6*1 =!-./(</0 U@C (.2* 1/0<;* -/0(3* & A&3 !4.(/10-*1" !4 A2!-2 .2* (044*(3 2&1 ./ 6&D* &-!(-0!. /,* .2*>/&; &41 (*.0(4 ./ .2*3.&(.!4>"7/!4.* &</0. U@N -&6* .2* @ /(;/4> (&-*

E E ^ . & $ R 8 9 L 8 *10-*1,(/6 =*(<*-D3 6 , ,!>T 9

A2*(* .2* 1!3.&4-* /,* .2* 2&1 ./ <* -/=*(*1*!.2*(? U R $@ @N /(@T !6*3 f -2/;!&3. /4 /72 9 ?T$g" !4 UNR .2* " (" /(,!=*",/;1 -/4.*3. -/4F 3!3.!4> /,* ;*&7!4> (044!4> :0/!.& &41 37*&(".2(/A!4> &41 A(*3.;!4> 8.2* ;&3.

$

f G

G"!;Wd' "& $ $!

"O'

<*!4> &;3/ 7(&-.!3*1 <5 !.3*;,9 !4 ?RR </OF !4> 4 ?RN -2&(!/."(&-!4> /4 .2* R A&3 !4.(/10-*1 &41 .2/0>2 .2!3 A&3 .A!-* &3 ;/4> &3 .2* !.2&1 ./ <* .(&=*(3*1 ,(/6 *!>2.* ./ .A*;=* .!6*B !4 </.2 1!(*-.!/43 8&.* ,!(3.A!.2 ,/0(2/(3*3 &,.*(VNN A!.2 60;*3 &41 &,.*(CNR A!.2 .A/ 2/(3*39 (/6 ?CR .2*(* A*(* (&-*3 !4 A2!-2 .2* 2/(3*6*4 ./A&(13 .2* *41 /,* .2* (&-* 2&1 ./;*&7 ,(/6 .2*!(2/(3*3 &41 (04 <*3!1* .2*6 A!.2 .2* <(!1;* !4 .2*!(2&413 !.2 .2* 3&6* 5*&(<*>&4 .2*

7(&-.!-*' /,' .2*' " "' 8&' -/6<!4&.!/4' G/,' A(*3.;!4>' &41' </0!4>9'' A!.2' V@N' .2*' (&-*' !4' &(6/0(' A!.2' 2*;6*.' >(*&=*3' &41' 32!*;1' .2!0>2' &,.*(A&(13' .2*' 32!*;1' &;/4*' A&3' -&((!*1' /67*.!.!/43' <*.A**4'2*(&;13' &41' .(067*.*(3' &;3/' ,/041' &' 7;&-*' 2*(*' (!>!4&;;5' !.' A&3' /4;5' 6*4' A2/' .//D' 7&(.' !4' .2*' -/4.*3.3' <0.' &,.*(' ? @' </53' &;3/' 32&(*1'!4'.2*6

<3' -/4.*3.3' A*(*' /7*4' /4;5'./' ,(**6*4' /,' 70(*' *;;*4!-' 1*3-*4.' 7(/=!1*1' .2&.' 4/' 7*(3/4&;' 1!3>(&-*' 2&1' !4' &45' A&5' &..&-2*1' ./' .2*6' <0.' &,.*(' .2*' /6&43' -&6*' !4./' -;/3*(' (*;&.!/432!7' A!.2' (**-*' .2*5' A*(*' /7*4*1' ./' .2*6' &;3/' &41' !41**1' 8&3' !3' A*;;' D4/A4' .2*' /6&43' A*(*' 4/.' /,,;-!.8 ;;5' -/4F 3!1*(*1' <&(<&(!&43' =*4' ./' <&(<&(!&43' 2/A*=*(' &41' ./' 3;&=*3' 7*(6!33!/4' A&3' >!=*4' ./' =!*A' .2*6' A2!;*' !.' A&3' (*,03*1' ./' &;;' 6&((!*1' A/6*4' f &03&4!&3' =!' @N' `' Tg' /(' 6/(*' 7(/<&<;5' &;;' A/6*4' A2&.F 3/*=*(' *0-*7.' .2*' 7(!*3.*33' /,' *6*.*(' A2/' *=*4' *-*!=*1' &7;&-*' /,' 2/4/0(' &6/4>' .2*' 37*-.&./(3' 2/3*' A2/' .//D' 7&(.' !4' .2*' -/67*.!.!/43' 2&1' ./' .&D*' &3/;*64' /&.2' &.' .2*' &;.&(' /,' L*03' ./' .2*' *,,*-.' .2&.' .2*5' 2&1' 37*4.' &.' ;*&3.' .*4' 6/4.23' !4' 7(*7&(&F .!/4' ,/(' .2*' >&6*3' &41' .2&.' .2*5' A/0;1' 4/.' (*3/(.' ./' &45' 04,&!(' .(!-D' !4' .2*' -/0(3*' /,' .2*!(' -/4.*3.' .2!3' /&.2' A&3' .&D*4' ,/(' </5' /67*.!./(3' <5' &4' /;1*(' (*;&.!=*' 7*-!&;' 7(&-.!-*' ,/(' .2!(.5' 1&53' &.' ;!3' A&3' &;3/' 030&;' <0.' 7(/<&<;5' /4;5',/,' .2/3*' A2/' A*(*' -/6!4>' ,/(A&(1' ,/(' .2*' ,!(3.' .!6*' 2*' 10.!*3' /,' 2*(&;13' &41' K01>*3' A*(*' 1!3F -2&(>*1' <5' .2*' &77/!4.*1' <5' 7/70;&(' *;*-.!/4' ,(/6' &6/4>' .2*' ;*&43' .2*63*;=*3' 2*!(' 406<*(' (/3*' !4' -/0(3*' /,' .!6*' ,(/6'$ ./' @' T' $N' &41' $@' <0.' &,.*(' ; ' !.' A&3' &;A&K(3' $N' !3.!4>0!32*1' <5' 70(7;*' (/<*3' A(*&.23' /,' <&5";*&=*3' &41' &' 3*&.' /,' 2/4/0(' /77/3!.*' .2*' .2*5' D*7.' >0&(1' /=*(' .2*' 3.(!-.' /<3*(=&4-*' /,' &;' .2*' 6!40.*' (*>0;&.!/43' ,/(' .2*' -/4.*3.3' &41' !4' >*4*(&;' 6&!4.&!4*1' /(1*(' 4' .2*3*' 10.!*3' .2*5' A*(*' 3077/(.*1' <5' &' 446<*(' /,' &..*41&4.3' 7(/=!1*1' A!.2' 3.&=*3' (&43F >(*33!/43' /,' .2*' ;&A3' /,' .2*' >&6*3' &41' %04,&!(4*33' /4' .2*' 7&(.' /,' -/67*.!./(3' A*(* 04!32*1' <5' ,/(,*!.0(*' /,' .2*' 7(!Q*' /(' <5' 4*3' /,' 6/4*5' A2!-2' A*4.' ./' .2*' (*=*40*' /,' .2*' .*67;*' 0.' /,' .2*' 6/4*5' ,(/6' 7*4&;.!*3' /,' .2!3' D!41' &' A2/;*' (/A' /,' <(/4Q*' !6&>*3' /,' L*03' 8-&;;*1' Q " ' A&3' *(*-.*1' !4' ,(/4.' /,' .2*' *;*=*4' .(*&30(*" 2/03*3' &;/4>' .2*' *&3.*(4' *41' /,' .2*' 4/(.2*(4' A&;;' /,' .2*' ;.!3

2*' >&6*3' A*(*' /7*4*1' A!.2' .2*' 3/041' /,' .(067*.3' &41' .2*' 7(/-;&6&.!/4' /, 2*(&;13' .2*' 6&(32&;;!4>' /,' .2*' &(!/03' -/67*.!./(3' !4' .2*' ' &--/67&4!*1' <5' .2*' &44/04-*6*4.' /,' .2*!(' 4&6*' &41' -/04.(5'<5'.2*'2*(&;1'&41'.2*'&77/!4.6*4.' <5';/.' /,' .2*' 7&!(3' /,' -/6<&.&4.3' 2*' G=!-./(3' !4' .2*' 3*=*(&;' 7&!(3' /,' -/67*.!./(3' 2&1' .2*4' &77&(*4.;5'./'-/4.*41'!4'-/07;*3' A!.2' *&-2' /.2*(' 04.!;' /4*' -/07;*' &;/4*' (*6&!4*1' &41' .2*' A!44*(' !4' .2!3' &3' 1*-;&(*1' =!-./(' ' ,' .2*' 406<*(' /,' -/6F <&.&4.3' 2&1' <**4' 04*=*4' 3/' .2&.' 4*' /,' .2*6' 2&1' (*6&!4*1' A!.2/0.' &4' /77/4*4.' 2*' 2&1',!4&;;5'./'6**.' .2!3' (!=&;' 2*'-/4F .*3.3' A*(*' &--/67&4!*1' <5' .2*' 603!-' /,' ,;0.*3' 2*' 4&6*' /,' .2*' =!-./(' 8&41' /4*' A2/6' 4/' &1=*(3&(5' 2&1' -/6*' ,/(A&(1' ./' 6**.' -/04.*1' ,/(' =!-./(9' &3' A*;;' &3' %2!3' 2/6*' A*(*' 7(/-;&!6*1' &;/01' <5' .2*' 2*(&;1' &41' &' 7&;6"<(&4*2' 7(*3*4.*1' ./' 2!6' <5' .2*' " $ ' 2*' &-.0&;' 7(!Q*' 2*' /4;5' (*-*!=*1' &.' .2*' >*4*(&;' &41' 3/;*64' 1!3.(!F <0.!/4' /4' .2*' ;&3.' 1&5' /,' .2*' ,*3.!=&;' 2!3' A&3' "/(!>!4&;;5' 3/6*' &(.!-;*' /,' =&;0*' <0.' &.ri.2*' -/66&41' /,' .2*' *;72!-' /(&-;*' .2!3' -03./6' A&3' 1(/77*1' &41' .2*' =!-./(3' A*(*' >(&-*1' <5' &' A(*&.2' /,' .2*' ;*&=*3' /,' .2*' 3&-(*1' A!;1' /;!=*' 3&!1' ./' 2&=*' <**4' /(!>!F 4&;;5' 7;&4.*1' <5' *(&-;*3' A2!-2' 2&1' <B4' -0.' A!.2' &' >/;1*4' D4!,*' <5' &' </5' /,' 4/<;*' ,&6!;5' A!.2' </.2' 7&(*4.3' ;!=!4>' ,.*(' &</0.' VCN' .2*' =!-./(3' &;3/' 7/33*33*1' .2*' (!>2.' ./' 70.' 07' 3.&.0*3' /,' .2*63*;=*3' !4' .2*' ;.!3

2*' ,*3.!=&;' *41*1' A!.2' &3&-(!,!-*' 6&1*' <5' .2*' =!-./(3' A*&(!4>' .2*!(' -(/A43' &.' .2*' 3!0' 1/0<;*' &;.&(3' /,' .2*' 2!;;' /,' (/403' &41' A!.2' &' <&4:0*.' !4' .2*' , : " ' /,' .2*' ;.!3' (!;;!&4.' 1!3.!4-.!/43' &A&!.*1' .2*' =!-./(' /4' 2!3' (*.0(4' 2/6*' ,/(' 2!3' =!-./(5' A&3' 1*/6/1' ./' 2&=*' (*,;*-.*1' 2/4/0(' /4' 2!3' 4&.!=*' ;&41' &.' ;&(>*' *' 6&1*' 2!3' *4.(5'-;&1'!4'70(7;*'07/4'&-2&(!/.' 1(&A4' <5' ,/0(' A2!.*' 2/(3*3' &6!13.' .2*' K/503' 32/0.3' /,' &;;' .2*7*/7;*' &41' .2*4' (/1*' &6!1' &4' *00;.&4.' *3-/(.' ./' .2*' .*67;*' /,' .2*' 2!>2*3.'>/1' &41' .2*(*' 1*7/3!.*1' 2!3' A(*&.2' &3' &' =/.!=*' /,,*(!4>' 0(!4>' .2*' (!1*' &3' &;3/' &.' .2*' <&4:0*.' A2!-2' ,/;;/A*1' .2*(*F 07/4' .2*' 3/4>' /,' =!-./(5' /,.*4' -/67/3*1' <5' .2*' 6/3.' *;*<(&.*1' 7/*.3' A&3' -2&4.*1' <5' -2/(&;' <&413' 2*(*' A&3' 4/' ;&-D' /,' /.2*(' (*A&(13' &.' .2*43' .2*' ;567!&4' =!-./(' (*-*!=*1' VNN' (' .2*' (!>2.' ./' &' 7;&-*' /,' 2/4/0(' &.' &;;' 70<;!-' >&6*3' &41' </&(1' !4' .2*' , : " ' /(' .2*' (*3.' /,' 2!3' ;!,*' 2*' /77/(.04!.5' &,,/(1*1' <5' .2*' &33*6<;!4>' /,' 3/' =&3.' &' -(/A1' ,(/6' &;;' 7&(.3' /,' (**-*' &.' ;567!&' A&3' 0.!;!Q*1' ,(/6' &</0.' .2*' 6!11;*' /,' .2*' V.2' -*4.0(5

<*,/(* 2(!3. <5 &0.2/(3 /(&./(3 7/*.3 &41 &(.!3.3 ./ 6&D* .2*63*;=*3 D4/A4 !4 .2* A!1*3. -!(-;*3 <5 .2* (*-!.&; /(*02!<!.!/4 /, .2*!(A/(D3 2*4 .2* -/67;!6*4. /, &/ !(/A4 A&3 /!,*(*1 <5 /4* 3.&.* ./ &4/.2*(2* 1!3.!4-.!/4 A&3 6&1* >*4*(&;;5 D4/A4 95 <*!4> 7(/-;&!6*1 <5 .2* 2*(&;13 &. .2* 9;5676!4 &6*3
f ;567;*06'8 (: " 2*.*67;* !, L*03 ;567;03 !4 .2* 3/0.2*(4 :0&(.*(!, .2*43 <*.A**4 .2* -(<7<;!3 &41 .2* ;!3303 . A&3 <0!;. /4 .2* 3!.* /, &4 4-!*4. .*67;* /, L*03 &3-(!<*1 ./ *0"# &;!/4 2* <0!;1!4> A&3 <*>04 &,.*(V 8N 041*(.2* .5(&4. !3!3.(.03 <0. A&3 037*41*1 /4 .2* *070;3!/4 /, 2!3 3/4 !77!&3 - V$N .3 /(!>!4&;& (-2!.*-.0(* =&3 7(/<&<;5 /(!- 2* 4&6*3 /, .2* !(-2!.*-.3 A*(* 4.!3.&.*3 &;;3*3-2(03 4.;6!-2;1*3 &41 /(,403 . A&3 -/4# !40*1 !4 .2* /(!4.2!&4 3.5;* 041*(.2* 5(!&4 D!4> 4.; -203 7!72J4*3 8 - $UV"$?C9 A2/ *67;/5*1 ,/(.2* 70(7/3* & /6&4 &(-2!.*-. /330.!03 . A&3 -/6F 7;.*1 <5 .2* /6&4 *67*(/(&1(!&4 7(/<&<;5 <*.A**4 $@V &41 $ N .2* B%&(/, !.3 1*1!-&./!4 4 .2!3 /--&3!/4 !4 /(&./!4 A&3 1*;!=*(*1 <5 .2* ,&6/03 %2*./(!-!&4 ; 6/4 &41 ;567!- >&6*3 43.!.0.*1 /4 .2* 6/1*;/, .2/3* &. ;5(A!& 2* *67*(/(!1*4.!,!*1 2!63*;, A!.2 J03 !41 &3306*1 .2* .!.;* /, ;567!03 -&03!4> .&.0* /, 2!63*;, ./ </ 7;&-*1 !4 .2* *67;* &41 -;&!6!4> 1!=!4* 2/4/0(3 ,(/6 2* 7(!*3.3 2* ,!(3./, .2*3* 7(!*3.3 A&3 2* -*;*<(&.*1 *(/1*3 ..!- 3 & 2*4 &03&4!&3 =!3!.*1 .2*43 &</0. $UN .2* .*67;* 2&1 <**4 (*-*4.;5 ,!4!32*1 * >!=*3 4/ 1*3-(!7.!/4 /, .2* ,&<(!- <0. 3.&.*3 .2&. .2* !6&>* /, .2* >/1 A&3 /, *4/(6/03 3!Q* /4;5 *0-*;:*1 <5 .2* - /33! /, 2/1*3 &41 /6* 8! $R `BR9  . &3 /, >/;1 &41 !=/!(5 &41 /4 !.3 ;a&3* A*(* (*;!*,3 (*7(*3*4.!4>  .2* <&..;* /, .2* .2*4!&43 A!.2 .2* 6&Q/43 8! $U `@9 4 .2* 7(*-!4-. &' >(*&. 406<*(/, 3.&.0*3 /, &1(!&4 A*(* *(*-.*1 <5 .2* -!.!*3 /, .2* (**D A/(;1 .2* ;&(>*3. /, .2*3* .2&.*(*-.*1 <5 .2*43 3./1 &. .2* A*3.*41 /, .2* .*67;* 6/4> .2* 3.&.0*3 /, *&(;!*(1&.* A&3 /4* /, 3 -(&.*3 2*(* A&3 &;3/ &,!4* >(/07 -/43!3.!4> /, 3/6* *(3!&43 072/;1!4> &' <(/4Q* .(!7/1 &41 &;3/ &4 &(-2&!- <(/4Q* 3.&.0* /, L*03 &3.;5 !4 .2* 7(*-!4-. .2*(* A&3 &' .*67;* /, (403 &41 2*& .2* 3&-(*1 !4-;/30(* /, A2!-2 *0.*41*1 1/A4 ./ .2* ;!3303
/6* /, .2* /(!- -/;06 43 /, .2* /(!>!4&; <0!;1!4> A*(* -&((!*1 /, , ./ /6* <5 0;;& !4 R? (./ &1/(4 .2* .*67;* /, $0 " 4 (*37*-. ./ !.3 &(-2!.*-.0(* .2* .*67;* 603. <* (*>&(1*1 &3 6&!4;5 .2* A/(D /, .2* @41 -*4.0(5 (&.2*(.2&4 .2* @41 -*4.0(5 2* <0!;1!4> A&3 /-./3.5;* 1!7.*(&; &41 7(/<&<;5 2573*.2(&; 3 1*3!>4*1 <5 /330.!03 !4 .2* ,/(6*(-*4.0(5 !. 603. 2&=* 7/33*33*1 6/(* .2&4 ; /(!4.2!&4 -/;06 43 &((&4>*1 !4 1/0<;* (/A3 /, @N *&-2 /4 .2* 4/(.2 &41 3/0.2 3!1*3 &41 !4 .(!7;* (/A3 /, R *&-2 &. .2* *413 2* -/;06 43 A*(* /, *4.*;!-5 6&(<;* V?B ,**.5 2!>2 &41 V"V ,**.5 !4 1!&6*.*(2* (0!43 !4 .2*!(7(*3*4. -/4F 1!.!/4 -/43!3./, $?-/;06 43 !4 .A/ >(/073 / .2* *&3. 3.&41 $ A2!-2 &(* -/67&(&F .!=*;5 !4.&-. &41 ,/(.2* 6/3.7&(. <*&(.2*!(&(-2!.(&=*3 </0. $NN ,**./ .2* A*3. &(* .2(**/.2*(3 .A/ 3.!;' *(*-. .2* .2!(1 A&3 /=*(.2(/A4 <5 &3./(6 !4 $R?@ 2* *0-&=&.!/43 /, $R?$ 32/A*1 .2&. .2* .*67;* 1!1* 4/. ;!* !4 .2* -*4.(* /, .2* 7(*F -!4-. <0. -/43!1*(&<;5 4*&(*(!.3 4/(.2*(4 A&;; 2* .*67;* /, .2* *(&/, !3!3.(.03 !3 6*4.!/4*1 <5 20-51!1*3 8!! V9 &3 /4* /, .2* ;1 .*67;*3 !4 .2* 3/0.2*(4 7&(./, .2* -!.5 4 (*37*-. ./ !.3 /(!>!4 &3 A*;' &3 !.3 =&3. 1!6*43!/43 (!3./.;* &, =' $$9 -/67&(*3 !. ./ .2* A/(D3 /, .2* 154&3.5 /, 573 ;03 &. /(!4.2 .2* 5(&6!13 /, >57. *41 .2* 70<;!- <0!;1!4>3 *(*-.*1 <5 1;5-(&.*3 /, &6/3 3 &6/406*4. /, .5(&445 !. A&3 4&.0(&;5 *,. 04,!4!32*1 <5 1*6/-(&.!-&; .2*43 !=5 8O;! @N `' R9 1*3-(!<*3 !. &3 " " "2 (1" "1 1 4 &;;0F 3!/4 ./ .2* ;/4> .!6* 10(!4> A2!-2 !. (*6&!4*1 04-/67;*.*1 0-!&4 &' " @C9 (*7(*3*4.3 L*03 &3 >*..!4> !67&.!*4. .7 D4/A A2*4. .2* .2*4!&43 !4.*41*1 ./ ,!4!32 2!3 .*67;* &3.;5 !.(0=!03 8=!! $V"$U9 6*4.!/43 !. &3 /4* /, .2* ,/(6/3. ,&6/03 *O&67;*3 /, 6&(<;* &(-2!.*-.0(* 2* (0!43 A*(* ,!(3. !1*4.!,!*1 <5 &((03F 3!&4 &(-2&*/;/>!3. (&43,*;1. !4 $?U "C &41 !41*7*41*4.;5 <5 .0&(. &41 *=*.. A2/3* >(*&. A/(D /4 .2* " (" A&3 70<;!32*1 !4 $U?@" R? 2* ,!(3.1*3-(!7.!/4 7(*.*41!4> ./ &45&--0(&-5 /, 1*.&!; A&3 !4 .2* ;*..*(3*4. ,(/6 65(4& <5 (&4-!3 *(4/4 !4 $?U? &41 70<;!32*1 !4 7 43= : 1 2* 3!.* 2&3 <**4 *07;/(*1 !4 (*-*4. .!6*3 <5 203/"# 70;/3 !4 $R?$ &9 (($R?@ 77 $ % &41 *4(/3* &. " " =!!! @U@ &41 , " (" " (7*A *1 9 -/6F 7(*2*43!=* 6/4/>(&72 /4 .2* 30<K*-. <5

/,' .2*' 072(&.*3' &41' !>(!3' *' &,.*(F A&(13' ;!=*1' &.' .2*' -/0(.' /,' 53!6&-203' D!4>' /,' 2(&-*' 0(!4>' ;*0&41*(3' ;!,*' 2*' <*>&4' &' -/67(*2*43!=*' 2!3./(5' /,' .2&.' 7*(3/4&>*' A2!-2' ,*;;' !4./' 1!3(*70.*' /A!4>' ./' !.3' *0&>>*(&./!/43' &41' !.3' ,&;3*' &--/04.3' /,' 1!3.&4.' ;&413' f .(&</' 7' ?@Rg' 4;5' 3-&4.5',(&>6*4.3' / .'&(*'7(*3*(=*1

4!(1-(!.!-*'8 (' D ' 2*'&(.' /,'!4.*(7(*.!4>'1(*&63' & ' 0 :' &41'

&

N4!(?3' 8 (**D' " G ' 2*' >/1' /,' 1(*&63'&

1416&-(!.43' 4' .2*4!&4' A2/' ;!=*1' &.' .2*' -/0(.' /,' !3!3.(&.03' &41' 2!3' 3/43' .' .2*' (*:0*3.' /,' !3!3.(&.03' 2*' 7(*7&(*1' &4' *1!.!/4' /,' .2*' /6*(!-'7/*63' *' A&3' &4' !4103.(!/03' -/;;*-./(' &41' &;3/' &' ,/(>*(' /,'/;1'/(&-;*3' &41' 7/*63' 2/Z*' A2!-2'>/' 041*(' .2*' 4&6*'/,' (72*03' &(*' (*>&(1*1' &3' ,/(' .2*' 6/3.'7&(.'-/4-/-.*1'<5'2!63*;,' *' A&3' 1*.*-.*1'!4',/(>!4>'&4'/(&-;*'/,' .! 3*03' &41' <&4!32*1',(/6' .2*43'<5'.2*' !3!3.(&'.;13*' <0.' <)' A&3'&,.*(A&(13' (*-/4-!;*1'./' .2*6'&41'!4'.2*!('!4.*(*3.'!410-*1']*(0*3' <5' &;;*>*1'/(&-0;&(' (*37/43*3' ./' 1*-!1*' 07/4'2!3'A&('A!.2' (**-*'f *(/1/.03'=!!!'?K

413&41(03' '5 ')

7 &' &41' 7 -/43!=&' *&3.3' /,' .2*' /6&4'>/11*33' 73'&

72*;.*3' /4',' D!4> 5-0(>03',' 6 &' *' A&3' D!;;*1' <5'&'3*(7*4.'&.' .2*' .!6*' /,' .2*' *07*1!./4' /,' .2*' *=*4'&>&!43.' 2*<*3 = ' /A!4>' ./' .2*' 4*>;!>*4-*' /,' 2!3' 40(3*' 573;7B;*' & ' A2/' ;&!1' .2*' <5' /4' .2*' >(&33' A2!;*' 32*' 32/A*1' .2*',2!(3.5' 2*(/*3' .2*' A&5'./'&'37(!4>' /,' A&.*(' .' A&3' !4' 2!3' 6*6/(5'.2&.' .2*']*6*&4' >&6*3' A*(*' /(!F >!4&;5'-*;*<(&.*1'&41' 2*' A&3' A/(32!77*1' .2*(*' 041*(' .2*' 4&6*' (-2*6 (03' & ' >!=*4' 2!6'<5'.2*3**(' 672!&(&03

7!3.2111603' & '&'<&-D'-2&6<*(9' 2*' (//6'A2!-2'!4'6&45' (**D'.*67;*3'&1K/!4*1' .2*'.*67;*' -2&6<*(' !.3*;,' &.' .4*' (*&(' &41' A2!-2'/,.*4'3*(=*1',/(' .2*'7(*3*(=!4>'/,' .2*' .*67;*' .(*&30(*' &41' !41**1' *=*4' /,' .2*' .&.*' 6/4*53' /(' .2*' ;&..*(' 70(7/3*' .2*' .2*4!&43' 03*1' .2*' (' f/,' .2*' /;1' .*67;*' /,' .2*4Z' &41' &,.*(A& 3' 8&-F -/(1!4>'./' .2*' /(1!4&(5'=!7A9' .2*' A*3.*(4' -2&6<*(g' /,' .2*' &(.2 4/4'&.' .2*43' f (!3"' ./72' , ' $$T@"' *6' :" -' $C" + ' $?g' & ' & ' &41' 7;&4' /,' (

77!&4' ' (**D'1!1&-.!-'7/*.'/,' 4&"' Q&(<03' !4' !;!-!&' 4' .2*' 3*-/41' 2&;,' /,' .2*' @41' -*4.0(5' 041*(' .2*' *67*(/(' &(-03' 0(*;!03' 2*' -/67/3*1' &' 1!1&-.!-' 7/*6' ' !4' ,!=*' </!D3' /4' .2*

2&<!.3' /,' ,!32*3' &4&' .4*' 6*.2/1' /,' -&7F .0(!4>' .2*6' .' !3' A(!..*4' !4' &4' /(4&.*' .2/0>2' /,.*4' </6<&3.!-' 3.5;*' *' A&3' ,/(6*(;5' -/4,/041*1' A!.2' 77!&4' .2*' &0.2/(' /,' &' 1!1&-.!-' 7/*6' /4' .2*' 2&3*' -/43!3.!4>'/,',/(0('</!D3'&41'*4.!.;*1'$:"$2 1!=' A(!..*4' !4' &' 2&(32' 1(5'3.5;*' &41' !4' 2&;.!4>'=*(3*' 2*' &0.2/(' /,' .2*' $:" 2 1 ';!=*1'041*(' &(&-&;;&' &</0.' .2*' *41' /,' .2*' @41'-*4.0(5'&41'-&6*',(/6' 7&6*&' !4' 5(!&' '7/*6'/4' <!(1"-&.-2!4>''-' 2' '7(*3*(=*1'./' 03' /4;5'!4'&' 7&(&72(&3*' <5' 0,/-4!03'A&3' &;3/' A(/4>;5'&3-(!<*1' ./' .2*' &0.2/(' /,' .2*'

73& " " ' " : ' 2*' /;1' .&;!&4' >/11*33' /,',*(.!;!.5'A!,*' /,' &.0(4'A!.2' A2/6'32*' 32&(*1' .2*'.*67;*' /4' .2*' 8K&7!./;' &41' .2*' ,*3.!=&;' /,' .2*' " = ' A2!;*' .2*' 'A*(*' 2*;1'!4'2*(' 2/4/0(' /4' .2*' $T.2' *-*6<*(' 3'>/11*33' /,'3/A!4>'&41' (*&7!4>'32*' 2&1'041*(' .2*' 4&6*' $ " ' /4' 0>03.' @V.2' &' 37*-!&;' ,*3.!=&;' .2*' 2 " '&.'A2!-2'2/A*=*(' /4;5'.2*' *3.&;3' &41' /4*' /,' .2*' " ' -/0;1' <*' 7(*3*4.' 3' 2*(' &</1*' A&3' !4' .2*' *&(.2' 2*(' A/(F 32!77*(3' !4=/D*1' 2*(' A2!;*' 3*&.*1' &41' ./0-2!4>' .2*' >(/041' f &-(/<!03' R " '!'$Ng' 03.'&3' &.0(4' A&3'!1*4.!,!*1' A!.2' (<403'3/' 73' A&3' &,.*(A&(13' !1*4F .!,!*1' A!.2' 2*&' &41' .2*4' &3' 6/.2*(' /, 07!.*(' 2/4/0(*1' &;/4>' A!.2' 07!.*(' 2!6F 3*;,'/4' .2*' &7!./;

7.&.!,!403' ' '= '

7.!6&.*3 & ' H .2/3*' <*;/4>!4>' ./' .2*' <*3.' /(' 4/<;*3.!9' .' /6*' !4' .2*' ;&3.' -*4.0(5' /,' .2*" *70<;!-' .2!3' .!.;*' A&3' </(4*' <5' .2*' &12*(*4.3' /,' .2*' H'<*3.'!' 6*4' !4' &' 7/;!.!-&;' 3?43*' & ' .2*' -/43*(=&.!=*39' A/(D!4>' !4' .2*' !4.*(*3.3' /,' .2*' *4&.*' &41' .2*' &(!3./-(&-5' /,' /,,!-*' &" ' ' ' * '&41' !4' /77/3!.!/4' ./' .2*' 1*6/F -(&.3&

(&-;*'38 (' " '¢¢/(&-0;&('(*37/43*3'''' /(' .2*'H'3*&.3'/,'/(&-;*'3'!' ('!3'03*1'G !4' .2*' 3&6*' 3*43*3' &41' &;3/' /,' =!-.!63' /,,*(*1'<5'.2/3*'-/430;.!4>'&4'/(&-;*9' 2*' 3*&.3' /,' .2*' A/(32!7' /,' 3/6*' 37*-!&;' 1!=!F 4!.5'A2*(*'7(/72*-!*'3'A*(*'!67&(.*1'A!.2' .2*' 3&4-.!/4' /,' .2*' 1!=!4!.5'*!.2*(' <5'.2*' 7(!*3.3'.2*63*;=*3' /(' A!.2' .2*!(' -/"/7*(&F .!/4' 2*(*' A*(*' &'>(*&.' 6&45'30-2'7;&-*3' !4' &;;' (**D'-/04.(!*3'&41' .2*3*' 6&5'<*' 1!=!1*1'&--/(1!4>'./' .2*' 6*.2/1'!4'A2!-2' .2*' 7(/72*-5'A&3' 6&1*' D4/A4'!4./' ,/0(' 6&!4'1!=!3!/43M 8$9' '/(&-;*3'8@9' /(2-;*3' <5' 1" '8 9' /(&-;*3' <5' '&41' 8C9' /(&-;*3' /,' .2*'

2*' 6/3.' (*=*(*1' /(&-;*3' A*(*' .2/3*' /,' .2*',!(3.'-;&33'A2*(*' .2*1!=!4!.5'&;6/3.!4"

>*4*(&;;5 (*>&(1*1 A!.2 -/4.*67. 2*
/6&43 1!1 4/. -/430;. *=*4 .2* !<5;;!4 I
=*(3*3 !4 /(1*(./ ,/(*-&3. .2* ,0.0(* 4
.2* /.2*(2&41 .2* >(/A.2 /, 307*(3.!./4
!4 .2*!67*(!&; 7*(!/1 4/. /4;5<(/0>2. .2*
4&.!=* /(&-;*3 !4./ (*70.* <0. -&03*1 &
>*4*(&; (*3/(. ./ ,/(*!>4 /(&-;*3 <*3!1*3
2* !4-;!4&.!/4 ./ .2!3 D!41 /, 7(/72*-5
3**63 4*=*(./ 2&=* <**4 6/(* >*4*(&;;5
37(*&1&6/4> .2* 6&33*3 /, .2* 7*/7;* .2&4
&. .2!3 .!6* 7&(.,(/4. .2* (**D/(&-0;&(
1*!.!*3 .2*(* A*(* .2* /(!*4.&; 1*!.!*3
A2/3* A/(32!7 A&3 4*&(;5 *=*(5A2*(* -/6B
<!4*1 A!.2 7(*1!-.!/43 4 6/3. =&(!/03 ,/(63
/, 7(/72*-5 A*(* (*7(*3*4.*1 &41 .2*
3.(&4>*(.2*5 A*(* .2* <*..*(.2*5 A*(*
;!D*1 4 .2* -&3* /, .2* /(&; /(&-;*3 .2*
(*37/43*3 !4 *&(;!*(.!6*3 A*(* ,/(.2* 6/3.
7&(. -/67/3*1 !4 =*(3*" /4 .2* 1*-&5 /,
7/*.!- 7(/10-.!=*4*33 .2*5 <*>&4 ./ .&D*
.2* ,/(6/, 7(/3* /(/, 7&33&>*3 ,(/6 .2*
7/*.3 .2* 0**D3 >*4*(&;;5 &1/7.!4> ;!4*3
/, /6*(/(0(!7!1*3 .2* .&;!&43 ;!4*3
/, *(>!; 2* 70<;!-1*-;&(&.!/4 /, /(&-;*3
*41*1 A!.2 .2* /,,!-!&; *0.*(6!4&.!/4 /,
7&>&4!36 041*(2 1/3 03 &. .2* *41 /,
.2* C.2 -*4.0(5

(-2*3.!- (

(-2*3.(& 2* 37&-* /, .2* (**D
.2*&.(* 3!.0&.*1 !4 ,(/4. /, .2* 3.&>* !4
A2!-2 .2* -2/(03 A*4. .2(/0>2 !.3 *=/;0F
.!/43 4 .2* /6&4 .2*&.(* !. A&3 &<F
3/(<*1 !4 .2* &(*&/--07!*1 <5 .2* &01!*4-*
#

(-03 4 /6&4 65.2/;/>5 &7*-0;!&(
1!=!4!.5 /, .2* 1*&1 &-(*&.!/4 /, .2*
7/70;&(<*;!*,3 *-&((!*1 6*4 /,, ./ .2*
;/A*(A/(;1 &41 D*7. .2* 1*&1 !67(!3/4*1
.2*(* !3 4&6*; ;!D* .2&. /, .2* (**D
&1*3 3*(=*1 ./ 1*4/.* .2* ;/A*(A/(;1
8 B !3 7

1(*&13 8 (2* 6/04.&!4
56723 # *&
?(*!<! 3;/3 8 &. /, *(> 606
7253!-!&4 &41 &1=!3*(/, .2* *67*(/(0;!&4
.2* 7/3.&.* &,.*(A2/3* 1*&.2 8 ? 2*
A&3 <&4!32*1 <5 2!3 30--*33/(3 &;*43
&41 &;*4.!4;&403 &41 ;!=*1&6/4> .2* <&(F
<&(!&43 *A&3 &,.*(A&(13 (*-&;;*1 *
3**63 4/. ./ 2&=*1!*1 <*,/(* .2* <*>!44!4>
/, .2* V.2 -*4.0(5 . .2* 30>>*3.!/4 /,
0;!&4 2* -/67/3*1 /4 .2* 7;&4 /, &<3.(&-.3
,(/6 *&(;!*(A/(D3 &6*1!-&; .(*&.!3*
:" 1 1 !4 U@ </D3 /, A2!-2
3/6* @@ &(* 7(*3*(=*1 7&(.;5 !4 .2* (**D
/(!>!4&; &41 7&(.;5 !4 & &.!4 (*41*(!4>
* 2!63*;, 7(*7&(*1 ,/(2!3 3/4 03.&.2!03
&-/437*-.03 # :" /, .2* ;&(>*(A/(D

!4 T </D3 /4;5 7&(. /, A2!-2 2&3 <**4
70<;!32*1

1(*3. 3 2* 5/04>*3. -2!;1 &41 /4;5
3/4 /, >&6*46/4 &41 ;5.3*64*3.(& 4
/6*(f 1 !!! RN?g !. !3 /4;5 3.&.*1 .2&.
!4 .2* *!>2.2 5*&(&,.*(.2* 60(1*(/, 2!3
,&.2*(A2/ A&3 4*=*(&<;* ./ 3** 2!6 &>&!4
&,.*(2!3 (*.0(4 2/6*2* -&6* <&-D ,(/6
.2*43 &41 .//D &< ;//15 =*4>*&4-* /4
>!3.203 &41 2!3 6/.2*(4 ;&.*(;*>*41
2* !3 1*3-(!<*1 &3 1//6*1 ./ 1*&.2 <0. 3&=*1
,(/6 2!3 ,&.2*(3 60(1*(*(3 <5 2!3 40(3*
(3!4/* /(2!3 3!3.*(;*-.(& &41 <(/0>2.
<5 &.(03.5 3;&=* ./ 2.!4 .* /4 &(4&3303
./ D!4>. (72;03 203<&41 /, 4&0!<!& .2*
3!3.*(/, >&6*64/4 *(* 2* ;!=*3 !4 .2*
6/3. !4.!6&.* ,(!*4132!7 A!.2 5;J1*3 2!3
7(/.*-./(3 3/4 04.!; 2!3 .A*4.!*.2 5*&(
&41 .2*4 -/6*3 A!.2 2!3 ,(!*41 <5 7/;;/3
1!(*-.!/4 ./ 5-*43*& 41 !4 -/4-*(. A!.2
;*-.(& *,,*-.3 .2* 1**1 /, =*4>*&4-* 2!3
1**1 !3 (*7(*3*4.*1 !4 /6*(&3 /4 !4F
1!370.&<;5 >;/(!/03 &41 *=*(5A2*(* -/6F
6*41*1 <0. !4;&.*(;*>*41 (*3.*3 !3 &,.*(
2!3 6/.2*(3 60(1*(&..&-D*1 <5 1*;03!/43
&41 2&(&33*1 <5 .2* (!45*3 --/(1!4>
./ 3-25;03 !4 2!3 9 " .2* 0(!*3
1/4/.30,,*(2!6 ./ *3-&7* *=*4 &,.*(2* !3
70(!,!*1 !4 .2* *;72!&4 .*67;* -.!4>
/4 .2* &1=!-* /, 7/;;/ 2* 7(*3*4.3 2!63*;,
&. .2*43 <*,/(* .2* -/0(./, .2* (* 7 >03
A2!-2 /4 .2!3 --&3!/4 !3 !43.!.0.*1 <5
.2*4* ,/(.2* .(!&; /, 2/6!-!1* 2*
>/11*33*3 /, =*4>*&4-* &77*&(&3 7(/3*F
-0./(3 7/;;/ &3 2!3 A!.4*33 &41 &1=/-&.*
&41 /4 .2* .(!&; (*37!.!4> !4 &4 *:0&;!.5 /,
=/.*3 .2*4* A!.2 2*(=/.!4> 7*<<;* 1*-!1*3
!4 2!3 ,&=/0(--/(1!4> ./ 0(!7!1*3 !4
2!3 ' (1 " " 1 (+ (*3.*3
>/*3 A!.2 5;&1*3 8&3 !4 3-25;03 <5
7/;;/3 &1=!-* ./ .2* &0(!- 2*(3/4*3*
!4 /(1*(./" ,*.-2 .2*4,* .2* !6&>* /,
(.*6!3 A2!-2 2&1 ,&;;*4 ,(/6 2*&=*4 !4
,/(6*(.!6*3 2* ,(!*413 &(* -&7.0(*1
07/4 ;&41!4> &41 &--/(1!4> ./ .2* -03./6
/, .2* -/04.(5 &(* ./ <* 3&-(!,!-*1 ./
(.*6!3 A2*4 .2* 7(!*3.*33 72!> 4;&#1 %
&41 (*3.*3 (*-/>4!3* /4* &4/.2*(&3 3!3.*(
&41 <(/.2*(&41 *3-&7* ./ (**-* A!.2 .2*
!6&>* /, .2* >/11*33 --/(1!4> ./ .2*
*;/7/44*3!&4 65.2 (*3.*3 37*4. .2* .!6*
/, 2!3 1*;03!/4 !4 (-&1!&W, " =!!! V
`Cg &41 &,.*(2* 2&1 /4 /4* /--&3!/4 !4 &
,!. /, ,(*4Q5 <!..*4 /, , & ,!4>*(.2* 06*"
4!1*3 &77*&(*1 ./ 2!6 !4 &1*&6 !4 A2!.*
(/<*3 &3 & ./D*4 /, (*-/4-!;!&.!/4 ,.*(
2* !3 -0(*1 2* 7;&-*3 2!63*; <5 .2* 60(F
1*(/, ;*.*3 B >!3.203 3/4 !4 7/33*33!/4
/, 2!3 ,&.2*(3 1/6!4!/4 5-,*43* &41

6&((!*3 .!3 3!3.*(;*-.(& ./ 5;&1*3
*(6!/4*1&0>2.*(/, *4>;&03 2&1 <**4
<*./.2*1 ./ 2!63*;, <0. 10(!4> 2!3 A&4F
1*(!4>3 32*! A&3 -&((!*1 /,, <5 B!;;*3 3/4
! /7./;*603 ,.*((*3.*3 2&1 3;&!4 .2*
;&..*(&. *;72!2* 6&((!*1 *(6!/4** &41
.2(/0>2 2*(-&6* !4./ 7/33*33!/4 /, 7&(.&
!3 3/4 <5 .2!3 6&((!&>* A&3 !3& 6`403
* 1!*1 /,& 3*(7*4.3 <!.* !4 (-&1!& &41
A&3 <0(!*1 &. *>*&W 2!3 (*70.*1 (*6&!43
A*(* &,.*(A&(13 <5 .2* 1!(*-.!/4 /, .2*
G/(&-;** <(/0>2./ 7&(.&W ! !? ?Ug

(>`/4` 2* .2*4!&4 .*(6 ,/(.2*
G&4*6<*(3/,& 3/-!*.5,/(.2* /<3*(=&4-* /,&
%1!=!4* -0;. 4/. <*;/4>!4>` ./ .2* .&.* (*;!F
>!/4**37*-!&;;5.2/3* A2/ A!.2/0.<*;/4>!4>`
./ .2* /;1,&6!;!*3# @ 9 4*=*(.2*F
;*33 ;!D* .2*6 ,/(6*1 &,&6!;504!/4 /(!>!F
4&.!4>`!4 1*3-*4.,(/6 .2* 3&6* &4-*3./(3
&41 7/33*33*1 &37*-!&;,&6!;5A/(32!7 2*
&1/7.!/4 /, .2* -2!;1(*4 /,,&6!;!*3 <*;/4>F
!4>`./30-2 &(*;!>!/03 3/-!*.5 /--0((*1 &3
A!.2 .2* *44*.3* &. .2* 3&6* .!6* &3
.2*!(*4(/;6*4.!4./ .2* 72(&.(!*3 &. .2*
,*&3./, .2* 7 .0(!&

(>!*3 8 (1 2* /(1!4&(5 (**D
.*(6 ,/(-*(*6/4!*3 >*4*(&;;5 -/44*-.*1
A!.2.2*A/(32!7/,&1!=!4!.5 <0.*37*-!&;;5
3*-(*. (*;!>!/03 -03./63 ./ A2!-2 /4;5.2*
!4!.!&.*1 *(* &16!..*1 &41 *:0!=&;*4.!4
6*&4!4>./H 653.*(!*3 I .A&3 -03./6&(5
./1*3!>4&.* &3 (>!*3.2* 653.*(!*3 /, .2*
A/(32!7/, !/45303 !4 7&(.!-0;&(2*3*
A*(* 3/6*.!6*3 -*;*<(&.*1 A!.2 A!;1 &41
G*0.(&=&>&4.(!.*3

,*!<&3;03 5

(!/4 8$g 65.2!-&;204.*(/,>!>&4.!-
3!Q* &41 3.(*4>.2 &41 /, >(*&. <*&0.5
* A&3 .2* 3/4 /, 5(!*03 /, 5(;,.!4
/*/.!&(/(8&--/(1!4>.&4/.2*(&--/04.g
"/, 3*!1/4 A2/ >&=* 2!6 .2* 7/A*(./
A&;D /=*(.2* 3*& &3 A*;;& &3 /=*(1(5;&41
* !3 3/6*.!6*3 (*7(*3*4.*1 &3 &4 *&(.2
</(4 <*!4>

&45 6&(=*;;/03 *07;/!.3 A*(* &3-(!<*1
./ 2!6 ,/(!43.&4-* .2* <0!;1!4>/, .2*
20>* 2&(</0("1&6/,L&4-;* 8 *33&4&g &41
.2*072*&=!4>/,.2*7(/6/4./(5/, ;/(06
!4 !-!;5f !/1/(03 !=RVg ,.*(2!3 A!,*
!1* 2&1 <**4 -&3.!4./ &1*3 <5 *(&,/(
2&=!4>1&(*1 ./ -/67&(* 2*(3*;; ./ .2&.
>/11*33 !4 2*&0.5 2* -(/33*1 .2* 3*& .7
2!/3!4 /(1*(./A//B(17** .2* 1&0>2.*(
%/,8 4 7 /4 3/4 /, !/45303 &41 (!&14
3 2* =!/;&.*1 2*(!4 & ,!./, !4./0!-&.!/4
8 4/7!/4 <;!41*1 2!6 !4 2!3 3;**7 &41 -&3.
2!6 /0. 07/4 .2* 3*&32/(* * >(/7*1
2!3 A&5 2/A*=*(./ *64/ &41 .2* 36!.25
%/, *72&*3.03 3*. /4* /, .2* ;&..*(3 A/(DF
6*4 *1&;;/4 07/4 2!3 32/4;1*(3 &41 <&1*
2!6 >0!1* 2!6 ./ .2* 7;&-* A2*(* .2*
304 (/3* &41 !4 .2* (&1!&4-* .2*(*/,2!3
*5*3!>2. (*.0(4*1 8 4/7!/4 2!1 2!63*;,
<*4*&.2 .2* *&(.2 ./ *3-&7* 2!3 =*4>*&4-*
3 36!..*4 A!.2 ;/=* ,/((!/4 -&((!*1
2!6 /,, ./ ` V3 8 (.5>!&9 &41 .2*(* ;!=*1
A!.2 2!6 04.!;.2* >/13 !4 .2*!(&4>*(
-&03*1 2!6 ./ <* D!;;*1 <5 (. 6!3 A!.2
2*(&((/A3 --/(1!4> ./ &4/.2*(3./(5
(.*6!3 32/.2!6 !4 2!/3 /((*.* *!,2*(,/(
2&=!4>-2&;;*4>*1 2*(./ &-/4.*3. A!.2 .2*
:0/!./(,/(2&=!4> *41*&=/0(*1 ./ /0.(&>*
2*(A2!;3.*4>&>*1 !4 .2* -2&3* 4/.2*(
;*>*41 (*;&.*3 .2&. .2* *&(.2 .*((!,!*1 <5
2!3 .2(*&. .2&. 2* -/0;1 (//./0.*=*(5 A!;1
-(*&.0(* ,(/6 (*.* 3*4. ,/(.2 &3-/(7!/4
A2!-2 D!;;*1 2!6 A!.2 !.3 3.!4> !3 ./6<
A&3 32/A4 !4 &4&>(& 4 /6*(W 0!
VU g 1533*03 3**3 2!6 !4 .2* ;/A*(A/(;1
&3 & 32&1* 3.!;; 70(30!4> A!.2 2!3 -;0< /,
<(/4Q* .2* -(*&.0(*3 A2/6 2* 3;*A !4
,/(6*(.!6*3 3 (*>&(13 .2* ;*>*41 /, 2!3
<*!4>7;&-*1 &6/4>.2*3.&(3
72* 6/(4!4> (!3!4> /, 2!3 -/43.*;;&.!/4
A2!-2 A&3 &;(*&15 D4/A4 &3 *&(;5 &3 /6*(
#. 0=!!! CRRg 1*4/.*1 .2* <*>!44!4> /,
3066*(2!3 6!14!>2. (!3!4> 1*4/.*1 .2*
3*&3/4 /, .2* =!4.&>* &41 2!3 ;&.* (!3!4>
.2* <*>!44!4> /, A!4.*(&41 !.3 3./(63
2!;3. 2* 3!4D3 .2* -/(7!/4 A2!-2 A&3
;!D*A!3*"7;&-*1&6/4> .2* 3.&(3 (!3*3&</"=*
.2* 2/(!Q/4 !(!03 8 ($ .2* 3.&(
/, .2* 1/>"1&53 !3 1*3-(!<*1 &3 *&(;5 &3
/6*(W ' OO!! @Tg &3 .2* 1/> /, (!/4
, 2!3 1&0>2.*(3 4!77* &41 *.! -2*
!. A&3 (*;&.*1 .2&. .2*5 A*(* *41/A*1
<5 72(/1!.* A!.2 <*&0.5 &41 <5 .2*43
A!.2 3D!;; !4 .2* &(./, A*&=!4> &41 A2*4
/4 .2* /--&3!/4 /, &7*3.!;*4-* (&=&>!4>
/*/.!& .2* 3&-(!,!-* /, .A/ =!(>!43 A&3
(*:0!(*1 <5 .2* /(&-;* .2*5 =/;04.&(!;5./
3&=* .2*!(-/04.(5 7!*(-*1 .2*!(.2(/&.3
A!.2 .2*!(320..;*3 3 &(*A&(1 ,/(.2*!(
=/;04.&(5 3&-(!,!-* *(3*72 4* &41 ;0./
-2&4>*1 .2*6 !4./ -/6*.3 A2!;* &3&4-F
.0&(5 A&3 <0!;. !4 .2*!(2/4/0(&. (2
6*403 &41 *07!&./(5 /,,*(!4>3 A*(* 5*&(;5
7&!1 ./ .2*6

8@g (**D 3-2/;&(</(4 &. 2*<*3 !4
>57. A2/ .&0>2. &</0. .2* 6!11;* /,
.2* V.2 *4.0(5 &. ;*0&41(!& &41 /4F
3.&4.!4/7;* * !3 .2* &0.2/(/,& 3/6*F
A2&. !67/(.&4. *.56/;/>!-&,;*0!-/4 &41
&4 &4.2/;/>5/, 6&0!63-/;;*-.*1 ,(/6 .2*
/;1 (**D 7/*.3

(!.27& &0>2.*(/, (*-2.2*03 D!4>
/, .2*43 A!,*/, /(*&3 6/.2*(?, 6- -
&41 L*.*3 #$?

(/3!03 /, 7&!4 &7(*3<5.*(!4 03!.&4!& </0.C$U &41&.2 A!32 /, 0>03.!4* A2/6 2 2&1 3/0>2. /0. !4 ,(!-& 2 -/67/3*1 2!3 2!3./(5 &>&!43. .2 2*&.2*4 & " , 1 " !4 3*=*4 </!D3 .2 ,!(3. &..*67. &. & 2(!3.!&4 04!=*(3&; 2!3./(5 ,(/6 1&6 ./ C$N 2 .2*/(5 / , 2!3 A/(D !3 .2&. .2 A2/;* 2!3./(5 /, 6&4D!41 !3 1!(*-.*1 <5 .2 /4 /1 A2/ -(*&.*1 .2*6 &41 !. &!63 &. (*,;&.!4> .2 -2&(>*3 <(/0>2. &>&!43. 2(!3.!&4!.5 <5 32/A!4> .2&. !. A&3 4/. ./ 2(!3.!&4!.5 &41 .2 &</;!.!/4 /, .2 2*&.2*4 (*;!>!/4 .2&. .2 -&;&6!.!*3 /, .2 .!6 A*(* 10* <0. .2&.30-2 -&;&6!.!*3 2&1 &;A&53 *0!3.*1 &41 ./ &3.!;;>(*&.*(1*>(** <*,/(* 2(!3.!&4 .!6*3 !3 -2!*, &0.2/(!.5 !3 03.!4 <*F 3!1*3 A2/6 2 6&!4;5 03*1 !=5 &-!.03 0*./4!03 &41 0.(/7!03 !3 =!*A /, .2 ,/0(D!4>1/63 /, .2 A/(;1 &<5;/4 &-*1/4 &(.2&>* &41 /6* 7(*=&!;*1 .2(/0>2/0. .2 A2/;* /, .2 !11;* >*3 (72*03 .2 ,&6/03 65.2!-&; 7/*. 3/4 /, 8 &>(03 &41 .2 03 &;;; 7* A2/ >&= <!(.2 ./ 2!6 /4 .2 <&4D3 /, .2 *<(03 !4 2(&-* 0-2 A&3 2!3 7/A*(!4 3/4>.2&. 2 -/0;1 6/=* .(**3 &41 (/-D3 &41 .&6 A!;1 <*&3.3 .2*(*<5 2*4 2!3 A!,* .2 5672 0(51!-* 1!*1 /, &3*(7*4.3 <!.* # ^ 9 2 1*3-*41*1 !4./ .2 ;/A*(A/(;1 &41 3/ 6/=*1 *(3 72/4 <5 .2 603!- /, 2!3 3/4>.2&.32 7*(6!..*1 2!6 ./ .&D* 0(51!-* <&-D A!.2 2!6 ./ .2 077*(A/(;1 /4 -/41.!/4 /, 2!3 4/.;//D!4>(/041 10(!4> 2!3 7&33&> .2(/0>2 .2 (*&;6 /, .2 1*&1 4 37!.* /, .2!3 2!3 !67&.!*4-* ;*1 2!6 ./ >&Q* <&-D &41 0(51!- 2&1 ./ (*.0(4 ,/(*=*(./ &1*3 f *(>!;6 1 !=CV "V@Ug

5.2/;/>5 1*3-(!<*3 2!6 &3 .&D!4> 7&(. !4 .2 (>/4&0.!- *07*1!.!/4 &41 (*7(*F 3*4.3 2!6 &3 *4-/0(&>!4> &41 &33!3.!4> 2!3 -/6(&1*3 <5 2!3 3/4> /4 6&45 /--&3!/43 *37*-!&;;5 A2!;* .2*5 A*(* 7&33!4> .2 !(*43 * A&3./6 !4 7!*-*3 07/4 3*603 <5 .2 2(&-!&4 3*4&13 *!.2*(,/(2&=!4> /77/3*1 .2 -*;*<(&.!/4 /, .2*!(/(>!*3 /(<*-&03* &,.*(;/3!4> 0(51!-* 2* -/4-*!=*1 &2&.(*1 /, &;; /.2*(A/6*4 !3 3-&..*(*1 ;!6<3 A*(* <0(!*1 <5 .2* 03*3 !4 .2* 1!3F .(!-./, !*(;&/4 ;5 6 703 <0. 2!3 2*&1 &41 ;5(* A2!-2 .2* 3*4&13 2&1 -&3. !4./ .2* *<(03 ;/&.*1 1/A4 !4./ .2* 3*& &41 &-(/33 !. ./ *3</3 .2* !3;* /, 7/*.3 !4 ;&.*(1&53 &41 2(* .2*5 A*(* <0(!*1 &. *.25 64& f 0-!&4 $$g 2* 4&6* /, (72*03 8&77&(*4.;5 4/. D4/A4 ./ /6*(&41 *3!/19 A&3 &330 6*1 <5 .2* 653.!-&41 (*;!>!/03 3*-. /, .2* (72;-! A2/ -;&!6*1 2!6 &3 .2*!(,/041*(2*5 &(/3* &. 3/6* .!6* &,.*(.2* ?.2 -*4.0(5 4 /77/3!F .!/4 ./ .2* (*-*!=*1 =!*A3 -/4-*(4!4> .2* >/13 &41 *37*-!&;;5 -/4-*(4!4> .2* 3.&.* /, .2* 3/0; &,.*(1*&.2 &41 !4 -;/3* -/44*0!/4 A!.2 (!*4.&; &41 >57.!&4 !1*&3 .2*5 .&0>2. .2* 4*-*33!.5 /, &70(!,!-&.!/4 /, &3/0; <5 (*;!>!/03 -/43*-(&.!/4 &41 .2* 03* /, .2* 6*.2/13 /, *07!&.!/4 &;;*>*1 ./ 2&=* <**4 6&1* D4/A4 <5 (72*03 2*5 1*-;&(*1 .2&. (72*03 A&3 .2* 6/3. &4-!*4. /, .2* 7/*.3 ;!=!4> ;/4> <*, /(* /6*(&41 &..(!F <0.*1 ./ 2!6 &406<*(/, 7/*63 /, 65.2!-&;

8 /6* !;;& ;<&4!" &7;*3" &(!39

70(7/(. 0. /, .2!3 &7/-(572&; (72!- ;!.*(&.0(* .2*(* 2&=* <**4 7(*3*(=*1 ,(/6 .2* .!6* /, .2* 1*-&5 /, 7&>&4!36 8$9 &4 *7!-7/*6 /4 .2* (>/4&0.!- *07*1!.!/4 & 1 " 8@9 *!>2.5"*!>2. 3/4>3 /," -/43*-(&.!/4 /(2564 3 7(&5*(3./=&!!/03>/13 &41 1&*6/43 A(!..*4 !4 2*0&6*.*(=*(3* &41 !4 &</6F <&3.!- 3.5;* !4.*41*1 ./ <* (*-!.*1 &.<;//1F ;*33 /,,*(!4>3 /, !4-*43*" 8 9 &4 *7!-7/*6 07/4 .2* 6&>!-&;7/A*(3 /, 7(*-!/03 3./4*3 #;

(3;;1-2;& A

3-&4 ;&53

3-2/721(!& . .2*43 &, *3.!=&; !4 2/4/0(/, ! /45303 # (!/" $9

3!(!3 4 >57.!&4 >/1 "A2/ A!.2 2!3 3!3.*(&41 A!,* 3!3 #1 *4K/5*1 !4 >57. .2* 6/3. >*4*(&; A/(32!7 /, &;; .2* >/13 * !3 .2* 6&;* >/1 /, .2* ,(0-.!,!-&.!/4 /, .2* ;&41 (/6 2!6 -/6*3 *=*(5<;*33!4>

''''''

.2*' .0!.!/4' /,' .2*' 6 /3.' ,&6 /03' (2*./(!-!&43' /,' .2*' .!6*' /(-!03' &.(/' &41' (*;;!03' 03-03' .' A&33' 4/.' ;/4>' <*,/(*' .2*'!43.!4-.' ,/(' 7/*.(5' &A/D*' !4' 2!6' A!.2' 30-2' 7/A*('.2&.' !.' 4**1*1' &;;' 2!3' ,&.2*(3' (*3/;0.!/4' ./' D**7' 2!6' ./' 2!3' ;*>&;' 3.01!*3*' 2!3' /(&./(!-&;' *0*(-!3*3' A*(*' 3!67;5' 7/*63' !4' 7(/3*' &3' !3' .*3.!,!*1' <5' /4*' /,' 2!3' ,*:;/A' 3.01*4.3' .2*' *;1*(' ?4*-&'W$ " ' !!' $N' Rg' ,.*(' 2*' 2&1' =!3!.*1' (**-*' &41' 3!&' ./' -/67;*.*' 2!3' *10-&.!/4' 2*' *4.*(*1' !4./' 7/;!.!-&;' ;!,*' &.' 2!3' ,&.2*(3' 1*3!(*' &41' ,!;;*1' 3*=*(&;' 30</(1!4&.*' /,,!-*3' 0.' 2*' 3//4' A!.21(*A' &>&!4' ,(/6' 70<;!-' <03!4*33' 7&(.;5' /4'.2*' >(/041' /,' 2!3' 2*&;.2' &41' 7&(.;5' ,(/6' &4' !4-;!4&.!/4' ./' !1;*4*33' &41' ;!=*1' /4;5' ,/(' 7/*.(5' !4' .2*' 3/-!*.5' /,' .2*' 7/*.3' /,' 2!3' 1&5'&6/4>' 2/6'2*' A&3'*37*-!&;;5'!4.!6&.*' A!.2' (/7*(.!03' *' -&6*' !4./' 4/.*' &3' &' 7/*.' <5' &'.(&>*15' -&;;*1' .2*' !' A2!-2' !3' 4/A';/3.'<0.'!3'60-2'7(&!3*1'<5'&4-!*4.' ;!.*(&(5'-(!.!-3' &41' &</0.' .2*' 3&6*' .!6*' 2*' 7(/10-*1' &' 3*(!*3' /,' &6&./(5' &41' !4' 7&(.3' *0.(*6*;5';!-*4.!/03' 7/*63 2*4' ;!..;*' 6/(*' .2&4' &' 6*(*' </5' &3' 2*' 3&53' 2!63*;' W+ :' !=' $N' ?Tg' 2*' A&3' >!=*4' &' A!.*' <5' 2!3',&.2*(" <0.' .2!3' 6&((!&>*' ;!D*' &' 3*-/41' /4*' *41*1' !4' &' 1!=/(-*' *' 1*(!=*1' 6/(*' 3&.!3,&-.!/4' &3' A*;;' &3' .2*' &1=&4.&>*' /,' -/4.&-.' A!.2' .2*' -/0(.' &41' A!.2' 6*4' /,' .2*' 2!>2*3.' 1!3.!4-F .!/4',(/6' &' .2!(1' 6&((!&>*' A!.2' &' A!1/A' /,' 4/<;*' ,&6!;5' &41' 2!>2' -/44*0!/43' /' 2*(' !4,;0*4-*' 7*(2&73' 32/0;1' <*' (*,*((*1' .2*' ,&-.' .2&.' 2*' .0(4*1' 2!3' &..*4.!/4' ./' 6/(*' !67/(.&4.' &41' 6/(*' 3*(!/03' A/(D3' *' 2&1' &;6/3.' -/67;*.*1' 2!3' <*3.' D4/A4' A/(D' .2*' (' A2*4' 3011*4;5' !4' T' ' 2*' A&3' <&4!32*1' ,/(' ;!,*' <5' 0>03.03' ./' /6!' /4' .2*' ;&-D' *&' 4*&(' .2*' 6/0.23' /,' .2*' &40<*' 2*' -&03*' ,/(' .2!3' 3*=*(!.5' /4' .2*' 7&(.' /,' .2*' *67*(/(' !3' 04D4/A4" =!1' 2!63*;' &16!.3' .2&.' .2*(*' A&3' &' ,&0;.' /4' 2!3' 3!1*' <0.' /4;5' &4' *(((/(' 4/.' &' -(!6*' W+ ' !' ' RUg' .' &;;' *=*4.3' .2*' 6&..*(' 1!(*-.;5' &,,*-.*1' 0>03F .03' &41' &3' =!1' 1*3-(!<*3' 2!3' *5*3' &3' .2*' -&03*' /,' 2!3' 6!3,/(.04*' !.' !3' -/4K*-.0(*1' .2&.' 2*' 2&1' <**4' &(.' 04!4.*4.!/4&;' *5*F A!.4*33' /,' 3/6*' /,,*4-*' /4' .2*' 7&(.' /,' .2*' ,(!=/;/03' >(&411&0>2.*(' /,' .2*' 7(!4-*' .2*' 5 04>*(' 0;!&' &41' 2&1' 4*>;*-.*1' ./' !4,/(6' .2*' *67*(/(' /,' .2*' 6&..*(' !3' !41*-*4.' &6&./(5'7/*63' ./' A2!-2'2*' &;3/' 7/!4.3' &3' .2*' 3/0(-*' /,' .2*' *67*(/(3' 1!37;*&30(*' -&4' &.' 6/3.' /4;5' 2&=*' <**4' 03*1' &3' &' 7;&03!<;*' *0-03*' !4' .2*' *5*3' /,' .2*' 70<;!-' &3' .2*5' 2&1' <**4' 70<;!32*1' 6/(*' .2&4' .*4' 5*&(3' ,.*(' &' 7*(!;/03' =/5&>*' =!1' (*&-2*1' .2*' 7;&-*' /,' 2!3' *0!;*' !4' .2*' A!4.*(' /,' $N"$$') ' &41' .2*(*' ,&(' ,(/6' 2!3' A!,*' &41' ,(/6' 2!3' /4;5'1&0>2.*(' A2/' 2&1' !42*(!.*1' .2*' 7/*.!-' .&;*4.' /,' 2*(' ,&.2*(' ,&(' ,(/6' 2!3' ,(!*413' &41' &;;' !4.*(-/0(3*' A!.2' 6*4' /,' >*4!03' 2*' 2&1' ./' 7&33' .2*' ;&3.' 5*&(3' /,' 2!3' ;!,*' !4' 1*3/;&.!/4' &6/4>' .2*' <&(<&(/03' *.3*' =*4' !4' 2!3' *0!;*' 2!3' 7/*.!-' .&;*4.' 1!1' 4/.' ,&!;' 2!6' ' .' A&3' .2*4' .2&.' 2*' -/67/3*1' 2!3' 7/*63' /,';&6*4.&.!/4' *4.!.;*1' .2*' + ' &41' 2!3' ;*..*(3' ,(/6' /4.03' ./0-2!4>' 7(//,3' /,' 2!3' >(!*,' .2/0>2' &;3/' /,' 2!3' ,&!;!4>' 7/A*(3' !3' -*&3*;*33' 7(&5*(3' &41' -/67;&!4.3' 2&1' 30--**1*1' !4' 3/,.*4!4>' 0>03.03' A2*4' .2*' ;&..*(' 1!*1' ;;' 2!3' *,,/(.3' ./' >&!4' ,/(>!=*4*33' /(' &;*=!&.!/4' /,' 2!3' -/41!.!/4' 6*.' A!.2W4/' (*37/43*' ,(/6' !<*(!03' &41' 2*' A&3' -/67*;;*1' ./' -;/3*' 2!3' ;!,*' <(/D*4"2*&(.*1' &41' !4' *0!;*' $U' !3' *0.&4.' A/(D3' &(*' 8$9' /=*' 7/*63' # G ' 70<;!32*1' &</0.' $C' (' !4' ,!=*' </!D3' &41' &>&!4' &</0.' @' (' !4' .2(**' </!D3' 2*' ;&..*(' *1!.!/4' !3' .2*' /4*' A*' 7/33*33' 3/6*' /,' !.3' ,/(.5"4!4*' *;*>!*3' 1*7!-.' !4' &=*(5'3*430&;' &5'.2*' 7/*.3' ;!,*' .2*' -*4.(*' /,' A2!-2' !3' .2*' 04D4/A4' /(!44&' 8@9' *..*(3' #9 ' &;3/' -&;;*1' ' (2*./(!-&;'1*-;&6&.!/43'!4'.2*',/(6'/,';/=*"' ;*..*(3'3*4.'<5'2*(/!4*3'./' .2*!(' 203<&413' /(';/=*(3'.A*4.5"/4*' !4' 406<*(" .2*' ;&3.' 3!0' /,' .2*3* '2/A*=*(' &41' .2*' ,/0(.**4.2' &(*' -/43!1*(*1' 370(!/03' 8 9' *.2/13' ,/(' <*&0.!,5!4>' .2*',&-*' & " ' A ' &1=!-*' ./' A/6*4' (*37*-.!4>' .2*' &(.' /,' .2*' ./!;*..*' .2!3'7!*-*' 2&3' -/6*' 1/A4' ./' 03' !4' &4' !4-/67;*.*' ,/(6' 8C9' 2*' (.' /,' /=*' # ' " ' /(' !4' .2(**' </!D3' 70<;!32*1' &</0.' @' (' &1=!-*' ./' 6*4' 8</!D' 9' &3' ./' .2*' $ &41' @9' &41' A/6*4' 8</!D' 9' &3' ./' .2*' 6*.2/13' /,' -/4.(&-.!4>' &' ;/=*"&,,&!(' &41' !430(!4>'!.3'-/4.!40&4-*' &' A/(D'&3' ,(!=/;/03' &3' !.' !3' /(!>!4&;' &41' *;&</(&.*' 8V9' 0(*3' ,/(' /=*' #7 ' ' .2*' 7*41&4.' ./' .2*' 7(*=!/03' A/(D' &41' 4/' ;*33' /,,*43!=*' !4' 30<3.&4-*' &41' ./4*' 8?9' 2*' ,!,.**4' </!D3' /,' .2*' (&43,/(6&.!/43' & (' 2!3' /4;5'-/43!1*(&<;*' A/(D' .' !3' -/67/3*1' !4' 2*0&6*.*(' =*(3*" .2*' 6&.*(!&;' !3' </(F (/A*1' ,(/6' (**D' &41' 8./' &' ;*33' *0.*4.9' ,(/6' /6&4' 3/0(-*3' <*!4>' &' -/;;*-.!/4' /,' ;*>*413' /,' .(&43,/(6&.!/43' =*(5' 3D!;,0;;5' -/6<!4!4>' K*3.' &41' *&(4*3.' !4' 6/.;*5' &;.*(F 4&.!/43' &41' *0.*41!4>' ,(/6' -2&/3' ./' .2*' &7/.2*/3!3' /,' 3*3&(' 2*4' !.' A&3' -/6F 7;*.*1' &41' 2&1' (*-*!=*1' .2*' ;&3.' ./0-2*3' .2*' A/(D' A&3' -&3.' !4./' .2*' ,;&6*3' <5' =!1' !4' 2!3' ,!(3.' 1*37&!(' &.' <&4!32 6*4.' <0.' A&3' &,.*(A&(13' (*A(!..*4' ,(/6' /.2*(' -/7!*3

8U9 &;*41&(/,/6&4*3.!=&;3&A <*>04!4.2*;&3.5*&(3<*,/(*2!3<&4!32"6*&.&41/(!>!4&;;5!4.A*;=* </D3-/(F (*37/41!4>./.2*406<*(/,.2*6/4.23,.2*3*/4;5!3!O&(*7(*3*(=*1(/<&<;5!<*-&03*=!1 2&1 4/.:0!.*-/67;*.*1.2*6 G&/6*&41 2&1 4/.2*6*&43./1/3/&./6!.A&3/(!>!4&;;5!4.*41*1,/(1*1!-&.!/4./0>03.03,.*(0>03.03 1*&.2.2*7/*.<B&4./(*=!3*!.A!.2 &=!*A./!.3 1*1!-&.!/4./*(6&4;-03 2* %1!1 4/.2/A*=*(7(/-**1A!.2 2!3(*=!3!/4 <*5/41.2*,!(3.</!D 6*.(*.2* 6/3.!67/(.&4.-*;*3.!&;72*4/F 6*4&41,*3.!=&;3/,*&-2 6/4.2A!.2 %&1*3-(!7.!/4/,.2*!(-*;*<(&.!/4&41&4&-F -/04./,.2*!(/(!>!4&--/(1!4>./.2*.&;!&4 ;*>*413 8R9/*63/,&6!;5./ 2!3,&6!;5./ 2!3,(!*413 &41./" 0>03.03<*;/4>!4>./.2*5*&(3T"$!4,!=*</D3.2*,!(3./,.2*3*A&3A(!..*4 A2!;*2*A&3 3.!;;/4 2!3 K/0(4*5./ /6!8T9 *..*(3,(/6 /4.03 &9 -, " !4,/0(</D3 /4;5 1!3.!4>0!32*1 ,(/6.2*7(*=!/03 7/*63<5.2*!(*7!3./;&(5 ,/(6 8$N9 ' &4!6!.&.!/4/,.2*7/*6 -,.2*3&6*4&6*<5&;;!6&-203 A2/ 2&1 &..&-D*1 041*(.2!3 4&6*7/;;/4!03 /, 2/1*3-/43!3.!4>/,!67(*-&.!/43 /4 &,&!.2;*33,(!*41 &./6*A(!..*4!4.2* ;*&(4*1&41/<3-0(*3.5;*/,.2* ;*0&41(!&4 7/*.3 8$$9 32/(.,(&>6*4./,&1!1&-.!-7/*6/4.2* ,!32!4.2* ;&-D *&&' =2 A(!..*4!4 2*0&6*.*(3 *3!1*3 .2*3* =!1 A(/.* 10(!4> 2K3 *0!;* 406*F (/03 7/*63 A2!-2 2&=* <**4 ;/3.&6/4> .2*6&*0;/>5/,.2*1*-*&3*1 0>03.03!4 .2* *.!/./4>0*30,,!-!*4.7(//,/,.2* 3.(*4>.2/,2!3<*4.&41.&;*4.,/(7/*.(5 4</.2/,.2*3* (*37*-.3 2* !3 1!3.!4>0!32*1 &</=* &;/.2*(/6&4 7/*.3 *(2&73 4/ /4* *=*(-/67/3*1 A!.2;*33 *0*(.!/4 &. .2* 3&6* .!6* 4/ /4* *=*(03*1 3/ !67/(F .&4.&,&-0;.5,(3/.(!=!&;&70(7/3* !3 7/*.(5 !3,(.2* 6/3.7&,.3!6 7;5*4.*(.&!4!4>4 !4.2!3 D!4 /,A(!.!4> 2* 7(/=*3 2!3 6&3.*(5<5 2!3 (*&1!4*33 !4;&4>0&>* &41 6*.(* <5 2!3 04A*&(!*1 7/A*(3/, !4=*4.!/4 <5 2!3 *=*("(*&15 A!.;*;*>&4-* &41 -2&(6.2/0>2/4.2* /.2*(2&41 2* !3 -/67;*.*;5 A&4.!4> !4 1**7 ,**;!4> &41 6/(&;*&(4*3.4*33 5 2!3.&;*4. =!1 8&3 A*;;&3 *(>!;9 2&3 2&1 >(*&.!4,!0*4-* / .2* ,0(.2*(1*=*;/76*4./,/6&4 7/*.(5 *37*-!&;;5 A!.2 (*>&(1./6*.(* &45 !6!.&.*1 2!3 3.5;* 3/ -;/3*;5.2&.2*!(7/*63 A*(*&-.0&;;5&..(!<0.*1./ 2!63*;, 6/4>.2*3*<*3!1*3&406<*(/, H 83**&</=*9 A* 2&=* .2* > "-.2* 40.(** 3 -/67;&!4./,/.2* !;;".(*&.6*4.!.6*.A!.2 &7/*6 !4 *;*>!&-=*(3* A2!-2 A&3&.&;; *=*4.3 A(!..*4!4.2* .!6* /, =!1

=!<) &; " 5 " / 6&4 (2*./(!-!&4 /, 0(1;> ;& &.! - & 5/04>*(-/4.*67/(&(5 &41,(!*41 /, .2* 7/*. 03/4!03 * 7/33*33,(/6 2!3 7*4 &7&4*>5(!-/4.2* *67*(/(2* 1 3;03.2* % (*&.1*;!=*(*1<*,/(* .2* *4&.* &. /6* !4 RT / .!3 1!3.!4>0!32*1 <*5/41.2* /.2*(37**-2*3/,.2*3 -;&33 <5 &-*(.&!4 G !>/0(/,.2/0>2.&41 !3 &;3/ /,=&;0* &3 &4 2!3./(!-&;&0.2/(!.5 &-!;=!03& 2* /6&4.(&>*F 1!&4 </6 &</0.@@N " &. (041;3;06 3/4 %W, 44!03 3!3.*(&41 707!;/,.2*7/*. * 37*4. 6/3./,2!3;!,* &. /6* A2*(* 2* >&!4*1 2!3;!=*;!2//1&3&1(&6&.!-7/*.&41 &3& 7&!4.*(; 2!3/;1 &>* 2* (*.0(4*1 ./ (041!3!06 &41 1!*1 .2*(* &. .2* &>* /, 4!4*.5 &</0. $ N " * !3 .2* ,!(3. /6&4 1(&6&.!3. A2/ -/4,!4*1 2!63*;,/ .2* -/67/3!4>/,.(&>6*1!*3 !.;*3 &41 ,(&>6*4.3/,3/6* .2!(.**4/,2!3!6!.&.!/43 /, (**D 7;&53 &(* 7(*3*(=*1 &3 A*;;&3 ,(&>6*4.3/,& - & *4.!.;*1 , A2/3* 2*(/ A&3 7(/<&<;5.2* =!-./(/, 514& 6!;;03 &0;03 ,.2!3 36&;; 406<*(K03.!,!*3 &45 /7!4!/4 /4 2!3 7/*.!-&; &-.!=!.5 2* A&3,&(;*33 7! /10-.!=* .2&4 2!3 7(*1*-*33/(44!03 &41 2!3 30--*33/(--!03 *=*(.2*;*33 2* &41 --!03 A*(-/43!1*(*1 .2* 6/3.!67/(.&4. (&>*1!&43 /, /6* 4 .2* K01>6*4./,;!.*(&(5 -(!.!-3 A2/,/;;/A*1 .2* .(&1!.!/43 /,.2* !-*(/4!&4 &>* 2* A&3 7(*,*((*1 ./ --!03 ,/(,!4!32 &41;*&(4!4>0<0. --!03 *0-*;;*1 2!6 !4,!(* &41 4&.0(&;7/A*(f /(&-* 9 !!! $ VV V?" S0!4.!;!&4 0 $ TU " (/, *..;*32!7 H 4 !.*(&(5 (!.!-!36 !4 &.!4 4.!:4!.5 I !4. , (1: O=!!! @? g !3 3.5;* A&3 7(&!3*1 ,/(!.3 -/7!/034*33 1!>4!.5 &41 3.&.*;!4*33 <0. !-*(/ f 6 ,!.3 @VRg 1*-;!4*3./ >!=* 2!6 -(*1!.,/(70(* &41 >*40!4* &.!4!.5 =*4 !4 !-*(/3 .!6* 2/A*=*(2* (*=!=&;/, 2!3 7;&53 A&3 /,.*4 A*;-/6*1 <5 /6&4 &01!*4-*3 3*&4 8 (, " 7(/7*(;5, " 2* H 2*&;*(I H 2*;7*(I9 4 /6*(f$$$='GO\$ RTTg .2* 7253!-!&4 /, .2* ;567!&4 >/13'

.2*4 &4 *7!.2*./ , >/13 A2/ >(&4.(*-/=*(5 &41 1*;!=*(&4-* *37*-!&;;5 /, 7/;;/ 2* 7&*&4 A2!-2 &77*&(3 !4 /6* W ! CU OO!! T$g A&3 -/44*-.*1 /(!>!2&;;5 A!.2 7/;;/ &41 2!3 3!3.*((.*6!3 . A&3 &3/;*64 3/4> ,/(3*=*(&;=/!-*3 *!.2*(7(&5F !4> ,/(.2* &=*(.!4> /, *=!; &41 ,/((*3-0* /(>!=!4> .2&4D3 ,/(2*;7 =/0-23&,*1 2* 4&6* A&3 2/A*=*(&;3/03*1 !4 &4 *0.*41*1 3*43* ,/(!4=/-&.!/43 ./ /.2*(>/13 2* 7&*&4 A&3 3.(0-D 07 <5 >*4*(&;3 <*,/(* .2* <&..;* &41 <5 &(6!*3 /4 .2* 6&(-2 &>&!43. .2* *4*65 &3 A*;; &3 &,.*(.2* =!-./(5 !6!;&(;5 !. A& 3/041*1 A2*4 .2* ,;**. 3&!;*1 /0. /, 2&(</0(&*&43 A*(* 304> &. *4.*(.&!46*4.3 <*.A**4 .2* 6*&; &41 .2* -&(/03&; &41 *=*4.0&;;5 &;3/ &. 70<;!- ,04*(&;3

6 1B/>03 8 (, <1HU1/ : ;!. H </5" ;*&1*(I9 2* 4&6* &6/4> .2* (**D3 ,/(.2*3;&=* A2/ 2&1.2* 1.!.5 /, ;//D!4> &,.*(.2* 3/4 /, 2!3 6&3.*(A2!;3. !4 </52//1 !43.(0-.!4> 2!6 !4 -*(.&!4 (0;*3 /, >//1 6&44*(3 &41 &..*41!4> 2!6 A2*4*=*(2* A*4. /0. *37*-!&;;5 ./ 3-2//; &41 ./ .2* &41 1: " @ !.2 .2* /6&43 !4 *&(;!*(.!6*3 !. A&3 &4 /;1 3;&=* /(,(**16&4 A2/ 2&1 &3!6!;&(10.5 &3 *<0. &,.*(!. <*-&6* .2* -03./6 ./ 2&=* *=*4 -2!;1(*4 .&0>2. ./ 37*&D (**D 2!3 7;&-* A&3 ,!;;*1 <5 & (**D 3;&=* A2/ </(* .2* (**D 4&6* &41 2&1 .2* 37*-!&; 10.5 /, !43.(0-.!4> 2!3 707!;3 !4 (**D R*114?60R8 (, /" .7&(.& .2* /=*(3**(/, .2* *10-&.!/4 /, .2* 5/04> #) (C

61/.(!<*3 4 (**-* .2* 6&3.*(A2/ !67&(.*1 >564&3.!- !43.(0-.!/4 !4 .2* #) (C

&4,!;& #; " 6&4.;* /, 32&>>5 ,(!Q* /(;*&.2*(.2!-D &41 1&(D"-/;/0(*1 A!.2/0.3;**=*3 <0../4*1 /(3.!.-2*1 07 !4 ,(/4. !4 .2* 1!(*-.!/4 /, !.3 ;*4>.2 2//1 # < A&3 >*4*(&;;5 ,&3.*4*1 /4 ./ !. &41 1(&A4 /=*(.2* 2*&1 .A&3 -2!*,;5 A/(4 <5 7*/7;* /, ;/A (&4D &41 3;&=*3 <0. &;3/ <5 .2* 2!>2*(-;&33*3 &41 *=*4 <5 ;&1!*3 !4 <&1 A*&.2*(/4 &K/0(4*5 &41 !4 .2* -/04.(5

3*/4!43 8$g (**D3-0;7./(/, *41* !4 2(&-* </0.C ? 2* A&3*67;/5*1 !4 .2* 1*-/(&.!/4 /, .2* .*67;* /, L*03 !4 ;567!& f --/(1!4>./ &03&4!3 = $N ?g 2* A&3 .2* 3-0;7./(/, .2* 6&(<;* >(/073 !4 .2*,(/4. /(*&3.*(4 7*1!6*4./, .2* .*67;* (*7(*3*4.!4> .2* 7(*7&(&.!/43 ,/(.2* -2&(!/."(&-* <*.A**4 ,!;/73 A1 8 4 6 03 # 5 *& @ & ,!> $g 67/(.&4. 7/(.!/43 /, .2*3* 2&=* <**4 <(/0>2./;!>2.<5.2* 8 *(6&4*0-&=&.!/43 * A&3 &;3/ .2* 3-0;7./(/, .2* ,!>0(* /, !D* 6/(* .2&4 ;!,*"3!Q* 1*1!-&.*1 <5 .2* *33*4!&43 W = @? $g A2!-2 2&3 <**4 (*3./(*1 ./ 03 <5 .2* 3&6* 6*&43 !.2 .2* *0-*7.!/4 /, .2* 2*&1 !. !3 !4 ,&!(;5" >//1 7(*3*(=&.!/4 # -0.9 8@g))

!;^

/((J..4*(T (*3./(&.!/4 3** (3 !.-2*; 1 " 22 7! $

1>&4&;!J. 4 .&;5 &6/=&<;* ,*3.!=&; /, .2* /;1=!;;&>* -/6604!.!*3 #) -*;*<(&.*1 &,. (.2* A!4.*("3/A!4> !4 &40&(5 /4 .A/ 1&53 3*7&(&.*1 <5 &4 !4.*(=&; /, &A**D 4 .2!3 /--&3!/4 &7(*3*4. 3/A A&3 3&-(!,!-*1 ./ *;;03 /(./ B(*3A2/ &. & ;&.*(7*(!/1 A&3 A/(F 32!77*1 ./>*.2*(A!.2 *;;0

&>03 4 .&;5 !4 &4-!*4. .!6*3 .2* 1 A&3 &-/04.(5 1!3.(!-. A!.2 3-&..*(*1 2&6;*.3 # 2* 3&6* 4&6* A&3 >!=*4 ./ !.3 ,/(.!,!*1 -*4.(* A2!-2 7(/.*-.*1 .2* 3&4-.0&(!*3 /, .2* 1!3.(!-. &41 3*(=*1 &3 &" ,*,0>* !4 .!6* /, A&(2* 3*7&(&.*1!3F .(!-.3 A*(* 6*6<*(3 /, &;(>*(-/6604!.5 ,.*(-!.!*3 2&1 1*=*;/7*1/0. /, .2* 7;&-*3" A2*(* .2* 7*/7;* /, .2*3*1!3.&(!-.3&33*6<;*1 .2* 1 A*(* *!.2*(-/67;*.*;5 6*(>*1 !4 .2*!(" ! /(-/4.!40*1 ./ *0!3. 6*(*;5 &3 >*/>(&72!-&; 1!3.(!-.3 A!.2/0. !67/(.&4-* ,/(&16!4!3.(&.!/4 /(&3 30<F /(1!4&.*=!;;&>* -/6604!.!*3 4 /6* .2* *&(;!*3.7/70;&.!/4 -/43!3.*1 /, .2* " .2* !42&<!.&4.3 /, .2* 3*=*4 2!;;3 /, .2* -!.5 &41 .2* 1 " .2* !42&<!.&4.3 /,

.2*' ;*=*;' >(/041' /,' .2*' -!.5' 0.' /,' .2*' .A/' *(=!03' 0;;!03' 6&1*' .2*' ,/0(' -!.5' .(!<*3' 2*' -/04.(5' .(!<*3' 1/0<.;*33' &(/3*' 3!6!;&(;5' /0.' /,' 1 ' .2*' 4&6*3' /,' A2!-2' A*(*' !4' 3/6*' -&3*3' .(&43,*((*1' ./' .2*6' !D*' .2*' /;'1!=!3!/4' " ' 1 " '&41' "2 " ' .2*' /;'1!3.(!-.3'041*(' .2*'&0.2/(!.5'/,' Y <1 ' ;/4>' -/4.!40*1' ./' *0!3.',/('3&-(*1' 70(7/3*3' 2*5'2&1'.2*!('37*-!&;' >0&(1!&4' 1*!.!*3' .*67;*3'&41' (!.*3' A2!-2' 30(=!=*1' *=*4' .4*' !4.(/10-.!/4' /,' 2(!3.!&4!.5' /' .2*' 1!3.(!-.',*3.!=&;3'<*;/4>*1'*37*-!&;;5'.2*' ,<1 E"6 ' #1 ' .2*' '8/0 9'&.' A2!-2' .2*' ,*3.&;' 7(/-*33!/4' -&(*,005' .(&F =*(3*1' .2*' /;1' </041&(!*3' /,' .2*' 1!3.(!-.' &41' ;&3.;5' .2*' + " < '# ' &) &!4.!4>' 6/4>' .2*' (**D3' 7&!4.!4>' 1*=*;/7*1' !4./' &4' !41*7*41*4.' &(.' 60-2' ;&.*(' .2&4' 3-0;7.0(*' .2/0>2' !.' A&3' 03*1' =*(5' *&(;5',/(' 1*-/(&.!=*' 70(7/3*3' 2!3' !3' 7(/=*1' <5'.2*' *=!1*4-*' /,' 7&!4.*1'=&3*3' <*;/4>!4>' ./' .2*' &>*3' /,' .2*' 6/3.' 7(!6!F .!=*' -!=!;!Q&.!/4' &41' <5'.2*' 60(&;' 7&!4.!4>3' 1!3-/=*(*1' <5' -2;!*6&4' &.' !(543' 2* 3-&4.5' 4/.!-*3' !4' &4-!*4.' &0.2/(3' (*37*-.F !4>'.2*',!(3.'1!3-/=*(!*3'!4'.2!3'&(.'-/44*-.' !.' A!.2' 2!3./(!-&;' 7*(3/43' &41' 4/.' A!.2' 65.2!-&;'4&6*3'&3'!4'.2*' -&3*' /,' 3-0;7.0(*' 203' !.' !3' 3&!1' f<5' ;!45' >' ' OOO=' $?g' .2&.' f*!.2*(' 2;; -;*3' .2*' >57.!&4' /(g' ;*&0.2*3' /,' 7(!4.2' A&3'.2*',!(3.'./'1(&A' /0.;!4*'3D*.-2*3'.2&.' *;*72&4*3'/,' !-B/4' 1*=*;/7*1'.2*6',0(.2*(' .2&.' -72&4.03'/,' /(!4.2'!4.(/10-*1'7&!4.!4>'!4'3!4>;*' .!4.3' 86/4/-2(/6*9' &41'.2&. 06 (03/,' .2*43' 8!4' .2*' 3*-/41' 2&;,' /,' .2*' ?.2' -*4.0(5' 1!3.!4>0!32*1' 6&4' &41' A/6&4' <5' >!=!4>' .2*' /4*' &'1&(D*('.2*' /.2*(' &';!>2.*(' -/;/0(' ;6 4'/,' ; /43*' !3' 6*4.!/4*1' &3'.2*' /(!" >!4&./ ' /,' &(.!3.!-'1(&A!4>'!4'7(/,!;*' W < <2 1 (' (' ' 1 " ' ;!45' OOO=' V?' ' TNg' .' !3',0(.2*(' 3&!1' /,' 2!6' .2&.' 2*' >&=*' =&(!*.5'./' .2*' ,&-*' <5' 6&D!4>' !.' ;//D' <&-DA&(13' /(' 07A&(13' /(' 1/A4F A&(13' &41',(**1/6' ./' .2*' ;!6<3' <5' 10;5' (*41*(!4>' .2*' K/!4.3' &;3/' .2&.' 2*' A&3' .2*' ,!(3.' ./' (*7(*3*4.' .2*' =*!43' /,' .2*' 206&4' </15' &41' ./' 6&D*' .2*' ,/;13' /,' .2*' 1(&7*(5',&;;' 6/(*' 4&.0(&;5'# ' V?g

&!4.!4>' 1!1' 4/.' 2/A*=*(' 6&D*' &45' 1*-!1*1' &1=&4-*' 04.!;' .2*' 6!11;*' /,' .2*' V.2'-*4.0(5' -' 2!3' &1=&4-*' A&3'-2!*,;5' 10*' ./' ;! ' /,' 2&3 3' A2/' 7&!4.*1' &.' .2*43' 6/4>' /.2*(' -;&!63'./' 1!3.!4-' .!/4' !.' !3' &..(!<0.*1' ./' 2!6'.2&.' 2*' >&=*' >(*&.*(' =&(!*.5' /,' *07(*33!/4' ./' .2*' ,&-*' A2!-2' 2!.2*(./' 2&1' <**4' (!>!1;5' 3*=*(*' !3' A/(D3' 6/3.'/,' .2*6';&(>*' -/67/3!.!/43' (!-2'!4',!>0(*3' >!=*' *=!1*4-*' /,' &;/,.5'&41 7/*.!-' -/4-*7.!/4" .2*5' &77*&(' ./' 2&=*' <**4' !4' >(*&.' 7&(.' 60(&;' 7&!4.!4>3',/(' 1*-/(&.!4>' .2*' !4.*(!/(' /,' 70<;!-' <0!;1F !4>3' f &03&4;&3' 0' @V" $" !' $V' &@' ' ?g' 2*' -/;/0(3' A*(*' ,!(3.'&77;!*1' !4' 04!,/(6' .!4.3' 3/'&3' ./' ,!;;' !4' .2*' /0.;!4*3' &41',(*32' ;!4*3'&41' ./0-2*3'A*(*' .2*4'&11*1' ./' !41!F -&.*' A2*(*' .2*' ;!6<3'&41' 603-;*3' <*>&4' &41' .2*' ,/;13'/,' .2*'>&(6*4.3B' 2*'1(&A!4>' &41' .2*' -/6<!4&.!/4' /,' -/;/0(3' A*(*' .2*' -2!*,' -/43!1*(&.!/43' ;!>2.' &41' 32&1*' A*(*' A&4.!4>' &41' 4/' &..*4.!/4' A&3'7&!1' ./' 7*(F 37*-.!=*' .' !3' 1/0<.,0;' A2*.2*(' &.' .2!3' *&(;5' .!6*' <*3!1*3' 60(&;' 7&!4.!4>3' 8*0*F -0.*1' .' -' /4' -&(*,0;;5' 36/-,2*1' 3.0--/"7(!6!4>' !.2' 7;&!4' A&.6W"-/;/0(39' .2*(*' A*(*' &45' 7!-.0(*3' /4' 7&4*;3' 30-2' &3' &,.*(A&(13' <*-&6*' -/66/4" <0.' A*' 6&5' ,&!(;5' &3306*' !.' 2*3*' A*(*' 7&!4.*1' /4' A//1*4'7&4*;3' "' # !*' A!.2' -/;/0(3' 6!0*1' A!.2' =&(!/03' D!413' /,' 1!3.*67*(' 30-2' &3' >06' /(' 3!Q*' ./' 6&D*' .2*6' 6/(*' &12*3!=*

4' .2*'3&6*' -*4.0(5'.2*' " '6*.2/1' /,' 7&!4.!4>' A&3' 1!3-/=*(*1' .2/0>2' 4/.' *;&</(&.*1' .!;;' .2*' ,/;;/A!4>'-*4.0(5' f 2*' 7(/-*33' &3' 1*3-(!<*1' !4' /6&4' .!6*3' <5' !.(0=!03'8=!!' T9' A&3' &3',/;;/A3W H 2*' 6*1!06' 03*1' A&3' 6*;.*1' A2!.*' A&O'# ' " ' 6!0*1' A!.2' /!;' ./' 6&D*' !.' 6/(*' ,;0!1' 2*' 7/.' -/4.&!4!4>' .2*' A&O' A&3' D*7.'/=*(' &'<(&Q!*('A2!;*' .2*' 7&!4.*(' A&3' &.' A/(D' !4' /(1*(' ./' D**7' .2*' 6*;.*1' A&O' ,(/6' 3/;!1!,5!4>' 2*' 3.0--/' !.3*;,' A&3' 7(*7&(*1' <5' &' -/&.!4>' /,' 2/.' A&O' &77;!*1' A!.2' &'<(032' &41' !.' A&3' 7/;!32*1' <5' <*!4>' (0<<*1' A!.2' &' A&O' -&41;*' &41',!4&;;5' A!.2' &'-;*&4';!4*4'-;/.2' ,.*(' .2*' 7!-.0(*' A&3' 7&!4.*1' .2*' A&O' -/;/0(3' A*(*' ,!0*1' 7&(.;5' 6*;.*1' !4./' .2*' 3.0--/' &41' <;*41*1' A!.2' .2*' A&O' /,' .2*' >(/041' <5' .2*' 2*;7' /,' &n -2&(-/&;' <(&Q!*('A2!-2' &3' 2*;1' -;/3*' ./' .2*' 30(,&-*' /,' .2*' 7&!4.!4>' &41' >(&10&;;5' 6/=*1'/=*('!.3'A2/;*' *0.*4.'I'8 !11;*./43' " " ' 7 ' "' $RRR' 7' C$U9g' 2*' *4F -&03.!-'6*.2/1'2&1'3*=*(&;'&1=&4.&>*3'/=*('7&!4.!4>' "' K!.' ;&3.*1' ;/4>*(' &41' A&3' 6/(*' 7(//,' &>&!43.' 1&67' A2!;*' .2*' -/;/0(!4>' A&3' 60-2' <(!>2.*(" /4' .2*' /.2*(' 2&41'!.'A&3' 60-2' 6/(*';&</(!/03'&41'3;/A' A2!-2' *07;&!43' .2*' ,&-.' .2&.' .2*' 6&K/(!.5' /,' *4-&03.!-'7&!4.!4>3' A*(*' /,' 36&;' 3!Q* 2!;*' .2*' 7!-.0(*3' /,' /;5>4/.03' -*(F .&!4;5'1!1'4/.'1*-*!=*'<5'./' 60-2'.(0.2./' 4&.0(*'!.' A&3' f2!3'5/04>*(' -/4.*67/(&(5g' .2*' &6!&4' ( ) ' A2/' 7(&-.!3*1' 3-*4*"7&!4.!4>8 (' " 1 ('&.' .2*43' &41'.203' >&=*' &4' !670;3*' ./' .2*' &..*67.' &.' !;;03/!"5' *,,*-.' &41' .2*' 03*' /,' 7*(37*/

.!=* f * 7&!4.*1 .2* 3-*4*(5 ,/(& 7;&5 /, ;3-25;03 8 !.(0= =!! D $N9 &41 1*-/(&.*1 .2* !4.*(!/(/, .2* 2/03* /, ;-;<;,.1*3 8 41 - 1*3 $U9g 2* .2*4!&4 $) 8&</0. ' (C@N9 A&3 .2* &-.0&;,/041*(/, &4 *4.!(*;5 4*A &(.!3.!- 3.5;* A2!-2 3.(/=* ./ *,,*-. !;;03!/4 <5 6*&43 /, .2* (*3/0(-*3 /, 7&!4.!4> f * A&3 .2* ,!(3. 3&53 ;!45 ./ >!=* 2!3 7!-F .0(*3 .2* &77*&(&4-* /, (*&;!.5 .2* ,!(3. ./ <(!4> .2* <(032 !4./ K03. (*70.* 8L - ?N9g * &;3/ ;*1 .2* A&5 !4 .2* 7(/7*(6&4&>*" ./(!&; (*7(*3*4.&.!/4 (*41*(! > /4 & ,;&. 30(,&-* .2* (*;!*,&41 =&(!*.5 /, 4&.0(* &41 .2* -/43*:0*4. &..&!4 6*4. /, .2* >(*&.*3. 7/33!<;* !;;03!/4 .3 7(!4-!7&; (*7(*3*4F .&.!=*3 A*(* 4)# /, *(& -;*& &41 A) /, 72*303 & &;3/ 7(/10-*1 (*6&(D&<;* /(D3 .2/0>2 4/. &4 &12*(*4. /, .2* 3&6* 3-2//; . A&3 /77/3*1 <5 .2* : " " 3-2//;,/041*1 <5 07/6703 /, !-5/4 &41 1*=*;/7*1 <5 &6 72!;03 /, 6 72!7 ;;3 A2!-2 &!6*1 &. G>(*&.*(7(*-!3!/4 /, .*-24!-&; .(&!4!4> =*(5

8$9' ' ' ; ' ' ' ' '

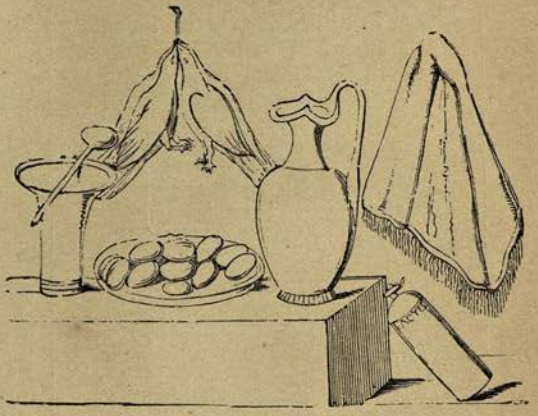
8 /03,./,.2* (&7!/ /*. /67*!!9

6*4. /, .2*,03!/4 /, -/;/0(3 &41 .2*!(10* >(&1&.!/4 !4 1!,,*(*4. 1*>(**3 /, ;!>2. &41 32&1* f ;!45 ?Ng f . A&3 ./ .2!3 .2&. 2* /A*1 2!3 .!.;* /, 32&1/A"7&!4.*(83D#&" 1 (K *35-2!03 /4 3,-,&9g 2* 3-2//; ,;/0(!32*1 .!;; &</0. .2* *41 /, .2* ?.2 -*4.0(5 A2*4 .2!3 &(. A&3 ,/(3/6* .!6* 4*>;*-.*1 &. .2*43 <0. 6&1* &4/.2*(!67/(.&4. &1=&4-* !4 .2* ./A43 /, 3!& !4/(*37*-!&;;5 &. 72*303 2* 7(!4-!7&; 6*(!.3 /, .2!3 .!* " 3-2//;K -/43!3. !4 (!-2*(&41 6/(* 1*;!*&.* -/;/0(!4> & 6/(* 7*(,*-. 353.*6 /, 7!a" -&(*,0; &41 -2&(&-.*(!3.!- 1(&A!4> &41 3/<*(&41 *,,*-.!=* -/;/0(!4> f ;!45 MJ MJW % A & 6*6<*(/, .2!3 3! // !4=*4.*1 .2* &(./, ,/(*32/(.*4!4> &41 /, 7&!4.!4> /4 =&0;.*1 -*!;!4>3 <*3!1*3 7*(F ,*-.!4> .2* *4-&03.!- &(. A2!-2 A&3 60-2 6/(*,&=/0(&<;*,/(70(7/3*3 /, !;;03!/4 &41 7!-.0(*3:0* *,,*-.!=*4*33 .2&4 7&!4.!4> .4 % $@ "$@Ug (**D 7&!4.!4> (*&-2*1 !.3 30 6 6!. !4 .2* /(D3/, 1 78 /, /3 !4 .2* 3*-/41 2&;, /, .2* C.2 -*4F .0(5 2* D4*A 2/A./ -/6<!4* .2* 6*(!.3 /, .2* /4!&4 &41 .2* !-5/4!&4 3-2//;3 .2*

perfect grace of the former with the severe accuracy of the latter.

After him the most famous artist was PRŌTŎGĔNĒS of Caunŏs. The following contemporaries, some older and some younger than himself, deserve also to be mentioned: Nīcŏmăchus and Aristīdēs of Thebes, Euphrānōr of Corinth, Nīcĭās of Athens, the Egyptian Antĭphĭlus, Thĕōn of Sămŏs, and Aĕtĭōn. After the age of Alexander, the art of painting was characterized by a striving after naturalism, combined with a predilection for the representation of common, every-day scenes, and of still-life. This branch of painting was also carried to great perfection, and Pīræĭcus was the most celebrated for it. Among painters of the loftier style the last noteworthy artist was TĬMŎMĂCHUS of Byzantium. [For the ancient authorities on the history of Painting, *see* Overbeck's *Schriftquellen; comp.* Brunn's *Künstlergeschichte*, and Woermann's *History of Painting*, bk. ii.]

Among the *Romans* a few solitary names of early painters are mentioned, for instance, Făbĭus Pictor and the poet Pācŭvĭus [Pliny, xxxv 19]; but nothing is known as to the value of their paintings, which served to decorate buildings. The way in which landscapes were represented by a certain S. Tadius [or Ludius (?), *ib.* 116; the best MS has *studio*] in the reign of Augustus is mentioned as a novelty. These landscapes were mainly for purposes of decoration [Vitruv. vii 5]. Indeed the love of display peculiar to the Romans, which had led them gradually to accumulate the principal works of the old Greek masters at Rome as ornaments for their public and private edifices, brought about an extra-



(2) *STILL-LIFE.
(Pompeii.)

ordinary development of decorative art, attested by the numerous mural paintings that have been found in Italy, chiefly at Pompeii and Herculaneum.

These paintings were mostly executed

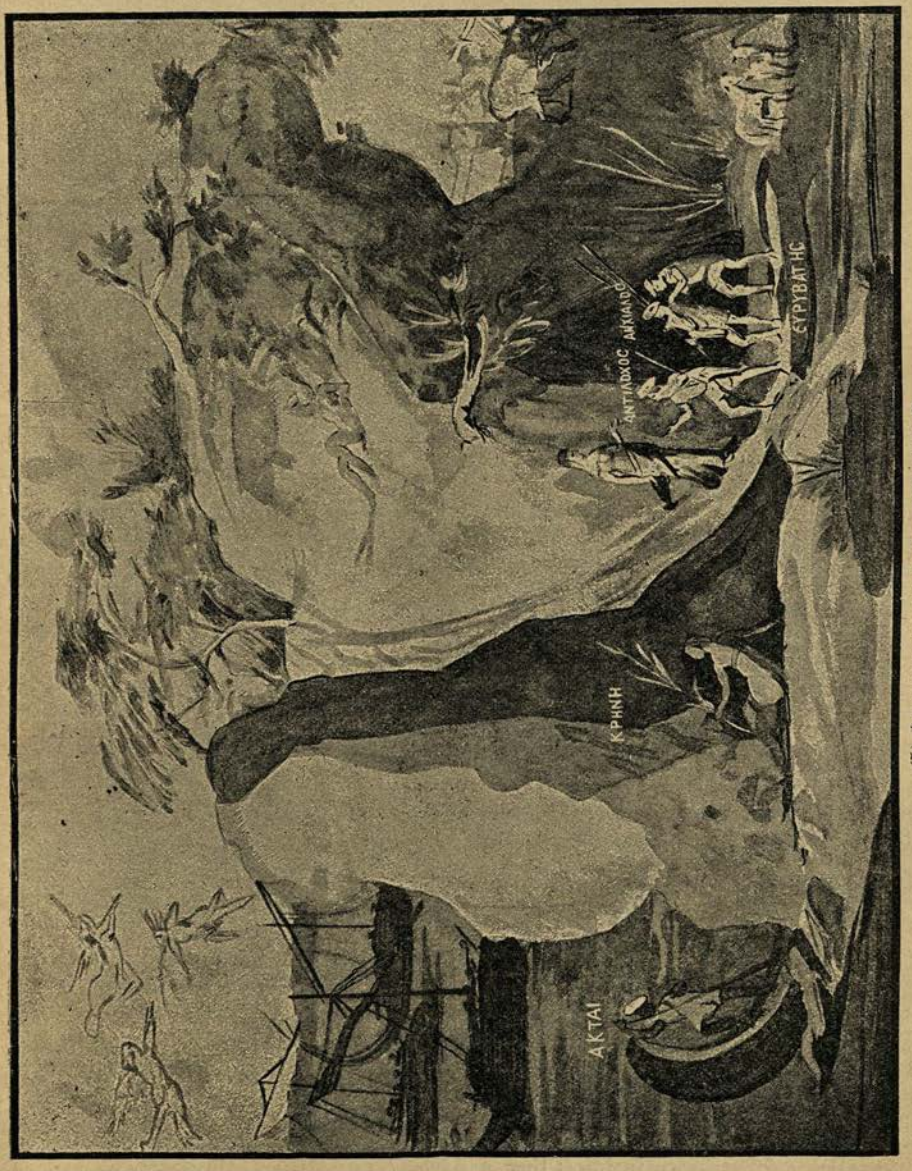
(3) *ORPHEUS.
(*Casa di Orfeo*, Pompeii.)

al fresco on damp stucco, seldom with colours *in tempera* on the dry surface. The principal subjects represented are figures from the world of myth, such as Mænads, Centaurs, male and female, Satyrs, etc.; scenes from mythology and heroic legends,

CC?

,(*:0*4.;5 -/7!*3 /,,&6/03 (**D /(!>!4&;3 f/4* /, .2* <*3. *0&67;*3 /, A2!-2 !3 (" 1 (# ,!> $9g ;&413-&7*3 8,!> ?9 3.!;";!,* 8,!> @9 &4!6&;38,!> 9 &41 &;3/ 3-*4*3 ,(/6 (*&; ;!,* # &;3/ -0.3 041*(A &41 1 (/6 &.*-24!-&; 7/!4. /, =!*A .*(!Q*1 .2* ;/3. 6&3.*(7!*-*3 /, .2* &4-!*4. &(.!3.3 ./ &6 0-2 6/(* (*6&(D&<;* 1*>(** &41 -&44/. <0. >!=* 03 &=*(5 2!>2 !1*& /, .2*6 4* /, .2* ,!4*3. 60(&; 7&!4.!4>3 !3 .2&. D4/A4 &3 .2* " R 1 f1!3-/=*(*1 !4 $?N? 4*&(.2* (-2 /, &;;;*403 &41g 4&6*1 &,.*(!.3 ,!(3. /A4*(&(1!4&; ;1/<(&41!4! 4/A !4 .2* !<(&!5 /, .2* &.!-&4 &. /6* . !3 -/7!*1 ,(/6 &4 *0-*;;*4. (**D /(!>!4&; &41 (*7(*3*4.3 !4 .2* 3.5;* /, &(*;!*, .2* 7(*7&(&.!/43 ,/(& 6&((!&>* # ,!> C9 fH .!3 -/67/3*1 I 3&53 /*(6&44 !4 2!3 "D: , " "1 ! $$V H 4?. 7!-./(!&;;5 <0. 5*. A!.2 .&3.* . *O2!<!.3 3*=*(&; !41!=!10&; 6/.!=*3 /, 60-2 <*&0.5 !.3 -/;/0(!4> !3 3/,. &41 2&(F 6/4!/03 &41 !. !3 !43.!4-. A!.2 .2&. 7;&-!1 &41 *(!/03 -2&(6 A2!-2 <*;/4>3 /4;5./ .2* &4.!:0* 4 .*-24!-&; *0*-0.!/4 2/A*=*(.2* A/(D !3 !43!>4!,!-&4. &41 !4 4/ A&5 (!3*3 &</=* .2* /(1!4&(5 2&41;!4> /, .2* /6&4 2/03*"1*-/(&./(!4 3!6!;&(30<K*-.3 I 2* &.!-&4 !<(&(5 &;3/ 7/33*33*3 &4 !67/(.&4. 3*(!*3 /, ;&413-&7*3 ,(/6 .2* : :,/041 10(!4> .2* *0-&=&.!/43 /4 .2* 3:0!;!4*! !4 $RCR"$RVN &413-&7*3 /, .2!3 D!41 &(* 6*4.!/4*1 <5 !.(0=!03 =!! V &6/4> .2* 30<K*-.3 A!.2 A2!-2 -/((!1/(3 03*1 ./ <* 1*-/(&.*1 !4 .2*>//1 /;1 .!6*3 2*5 (*7(*F 3*4. .2* &1=*4.0(* A!.2 .2* 3*3.(5> 4*3 8,!> ?9 .2* ./(5 /, !(-* &41 .2* =!3!. /, 1533*03 ./ .2* (*&;6 /, &1* .203 !;;03F .(&.!4> &-/4.!40/03 7/(.!/4 /, .2* 7/*6]RN"O! ?NN 2* 7(*1/6!4&4. -/;/0(3 &(* &5*;;/A!32 <(/A4 &41 &>(**4!32 <;0* &41 .2* 7!-.0(*3 &(* 1!=!1*1 ,(/6 /4* &4/.2*(<5 7!;&3.*(3 /, & <(!;;!&4. (*1 2*5 ,0(4!32 !4.*(*3.!4> *0&67;*3 /, .2* ;&413-&7*"7&!4.!4> /, .2* ;&3. 1&53 /, .2* *70<;!-/(.2* ,!(3./, .2* 67!(* &41 !4 7/!4./, !67/(.&4-* 3.&41 &;/4* &6/4> &;; .2* (*6&!43 /, &4-!*4. 7&!4.!4> 8 /*(F 6&44 $ &41 5 : 2 " (" 9 " A!.2 -2(/6/;!.2/>(&723 /, &;; .2* 3!O ;&413-&7*39 4 6/3&!-"7&!4.!4> &41 =&3*"7&!4.!4> 0 (&41 1 a f 2* 7(/-*33*3 /, 7&!4.!4>3 &(* (*7(*3*4.*1 !4 3*=*(&; A/(D3 /, &4-!*4. &(. * > !4 .2(** 60(&; 7&!4.!4>3 ,(/6 /67*!! 8J2(*!<*(3 =!!! @ C &41 !O " - " ^ ,!> $R9 =*4 3/6* /, .2* !67;*F 6*4.3 &41 6&.*(!&;3 03*1 <5 &(.!3.3 2&=* <**4 1!3-/=*(*1 203 !4 $RCT &. *1&(1"1*3" (*3 !4 .2* *41** / & >(&=* A&3 /7*4*1 -/4.&!4!4> &, *6&;* 3D*;*./4 30((/041*1 <5 *!>2.5 36&;; =*33*;3 /, >;&33 !4 6/3./, A2!-2 (*6&!43 /, &4-!*4. 7!>6*4.3 A*(* 3.!;; 7(*3*(=*1 *3!1*3 .2*3* .2*(* A&3 & 36&;; -07 /, <(/A4 >;&33 8,!> ? 9 '

a knife of cedar-wood, with its blade reduced to rust (*b*); a small bronze box (*c*) with a movable lid and four partitions, holding materials for pigments; a mortar of alabaster, and a smaller one of bronze (*d*); also two small cylinders of amber and two brush-handles of bone. One of the glass vessels contained bits of resin; another, wax; a third, a mixture of both; a fourth, a mixture of lamp-black and wax, with



(5) * LANDSCAPE FROM THE "ODYSSEY."
The messengers of Odysseus meeting the daughter of Antiphātēs, king of the Læstrygŏnēs (*Od.* x 87–110).
(Rome, Vatican Library.)

one or two elegant bronze spoons (*e*), either for removing colours from the palette, or for adding some liquid to mix them together; a small shovel, made of rock crystal, containing gold embedded in gum (*f*); and an oblong palette of basalt (*g*). There were traces of sebacic acid, possibly due to the presence of oil.

Our principal information about ancient pigments (Gr. *pharmăkă;* Lat. *mĕdĭcāmenta, pigmenta*) comes from Thĕŏphrastus (*De Lăpĭdĭbus*), Dĭoscŏrĭdēs (v), Vitruvius

& '&41' .2*' *;1*(' ;!45'8OOO!!!' &41' OOO=9' .'!3'/<3*(=*1'<5' !-*(/' !4' .2*' '`' UN' .2&.' /4;5', /0(' -/;/0(3' A*(*' 03*1' <5' ?$5"' G>4/.03' L*OO!3' !6&4.2*3' &41' .2*!(' -/4F .*67/(&(!*3' &3' -/4.(&3.*1' A!.2' .2*!(' 30-F -*33/(3' *.;/4' !-/6J-2.. ' (/./>*4&3

8?9' ' "] '

8 !(3.'7&<;!32*1'<5' ' !;;/4' *3-(!7.!/4' ';&'= ' '10' + ' F ' &;;/"(-6!&.4-B /!0.*4&5'$RBT'9

&41' 7*;;*3' ;!45'8OOO=' VN9' A2/' !1*4.!F ,!*1' .2*' -/;/0(3' &3' A2!.*' . # # #1$' 5*;;/A' 9 ' ' " #1$' (*1' 9 ' " 1$' &41' <;&-D' . # #1$' *=*4' 7;&-*3' *.!/4' !-/6&-203' 7*;;*3' &41' ;&4.2!03' 041*(' .2*' 3&6*' ;!6!.&./!4' 0.' !.' !3' 2&(1;5' 7(/<&<;*' .2&.' 30-2' !67/(.&4.' -/;/0(3' &3' <;0*' &41' >(**4' A*(*' 1!37*43*1' A!.2' *=*4' !4' .2*' 7(!6!.!=*' &(.' /' 1;5>4/.03" 60-2' ;*33' !4' .2*' 6/(*' &1=&4-*1' &(.' /' L*00!3' &41' 2!3' -/4.*67/(&(!*3" &41' ;*&3.' /' &;' !4' .2&.' /' 7*;;*3' &41' (/./>*4*3' 2*' *&(;!*3.' &(.!3.3' 2/A*=*(' 6&5' A*;' 2&=*' 03*1'-/67&(&.!=*;5',*A'-/;/0(3'&41'.2/3*' /,' .2*'3!67;*3.'D!41'.2*" ' '/,' ;!45' OOO=' N' &3'-/4.(&3.*1' A!.2' .2*' " ' 6' $' 30-2' &3' =*(6!;!/4' H (6*4!&4' <;0* I' H'1(&>/43' <;//1 I' 6&;&-2!.*' >(**4' !41!>/' &41' 70(7;*' 2*3*' A*(*' -2&(&-.*(!3.!-' /,' ;&.*(' 1*=*;/76*4.3' /,' &(.' &41' A*(*' 3/' -/3.;5' .2&.' .2*5' A*(*' 4/.' 7&!1',/(' <5' .2*' &(.!3.3' <0.' <5' .2/3*' A2/' >&=*' .2*6' .2*!(' -/66!33!/43' . ' CC" !.(0= '=!!'V'R9

2*' 7!>6*4.3' D4/A4' ./' .2*' &4-!*4.3' A*(*' &3',/;/A3M M

+ ' 2*' 7!>6*4.' 03*1' !4' (**-*' A&3' &' H'7!7*"-;&5'I'-&;;*1' # # #'8 ('# 3 1$' ,/041' !4' =*!43' !4' .2*' !3;&41' /,' *;/3' .' A&3'4/.'&=&!;&<;*',/(',(*3-/"7&!4.!4>'8 ;!45' OOO=' CT9' ' A2!.*' *&(.2' /,' (*.(!&' A&3' *67;/5*1' <5' ;- 6 -203' &41' &((2 3!03' . ! ') R1$' ' -/66/4*(' 7!>6*4.' A&3' .2*' " ' ' /,' *;;4.13' !4' !-!;5' 03*1' ,/(' 60(&;' 7&!4.!4>3' . ! ' CT' $TC9' &41' .2*' " ' $' 6&1*' <5' 6!0!4>'-2&;D' A!.2' .2*' >;&33' -/67/3!.!/4' A/(4' !4' .2*' (!4>3' /, .2*' 7//(' & ' CR9' /(',(*3-/"7&!4.!4>' .2*5' 0311' " ' &' 251(&.*1' 3!;!-&.*' /,' 6&>4*3!&' 3/' -&;;*1',(/6' &' -;!,,' !4' .2*' ,(!-&4'-/&3.'4*&(' >57.'&' N9' A2!-2'!4' /6*' A&3' &10;.*(&.*1' A!.2' $ ' & ' ?9' /(' /.2*(' 70(7/3*3' .2*5' *67;/5*1' A2!.*;*&1' 8 (' E ("*' &.' ' &4' &(.!,!-!&;' 7(/10-.' .2*' ,!4*3.' 3/(.3' /,' A2!-2' -&6*',(/6' 2/1*3' /(!4.2' &41' 7&(.&' .'!3' -&(</4&.*' /,';*&1' &41' !3' 3.!;;' 03*1' 041*(' =&(!/03' 4&6*3' & 1' -*(03*9' .' !3' 3/;1' !4' !.3' -(01*',/(6' &3' H' 2*64!.Q' /(' !*44&' A2!.* I' &41' 6!0*1' A!.2' 30;72&.*' /,' <&(!06'!4' H 0.-2' &6<0(>' &41' *4*.!&4' A2!.* I

j @' 2*' 7!>6*4.3' !4' 03*' A*(*5*;;/A' /-2(*' &41' /(7!6*4.' 2*' <*3.' D!41' /,' 5*;;/A' /-2(*'8 (' (# &.' 'A&3',/041' !4' .2*' 6!4*3' /,' &0(!06' .' A&3' &;3/' ,/041' !4' -5(/3' -2&!&' &0;' &77&1<-!&' 57(03' &41' 51!&' 2*' ..!-'=&(!*.5'A&3' ,!(3.'03*1'<5' ,.;B>4/.03' &41' !-/4" !.' A&3' &,.*(A&(13' 7(*,*((*1' ,/(' .2*' 2!>2' ;!>2.3' A2!;*' .2*' D!413' ,(/6' -5(/3' &41' 51!&' *(*' (*3*(=*1' ,/(' .2*' 32&1/A3' & ' OOO!!!' $VR"$?N' OOO=!!' $UT9' .'!3'&'1!;0.*1'<(/A4' /-2(*' /(' 251(&.*1' 7*(/0!1*' /,' !(/4' <*!4>' -/67/3*1',/'/05>*4' A&.*(' &41' !(/4' 6!0*1' ;5!.2' 6/(*' /(';*33' -;&5' (7!6*4.' /(' .(!" ;72!1*' /,' &(3*4!-' 8 (' " "*' &.' 1 " ' A&3' /,' .A/' D!413M 8$9' /,' &' >/;1*4' 5*;;/A',(/6' 53!&' /4' .2*' -/&3.' /,' .2*' *;;*37/4." &41' 8@9' &' 10;;*(' D!41' ,(/6' /4.03' &41' &77&1/-!&' 8 !/3-/(!1*3' ' $@N9' .' -/0;1' 4/.' <*' 03*1',/(',(*3-/*3' 8 ;!45' OOO=' CT9' *;;/A' /-2(*' &41' /(7!F 6*4.'8041*(.2*' 4&6*' /,'H'D!4>3'/(' 2!4*3*' 5*;;/A'I9' &(*' 3.!;;'!4' 3*

7 ' 4*' /,' .2*' /;1*3.' 7!>6*4.3' A&3' (011;*' 8 (' '*' &.' ' 2!3' !3' &' (*1'*&(.2'-/;/0(*1'<5'3*3:0!/0!1*' /,'!(/4' 4' .2*' /6*(!-' &>*' !.' A&3' 03*1' ./' /(4&F 6*4.' .2*' </A3' /,' 32!73' 4';&.*(' .!6*3' .2*' 1&5',(/6' A2!-2' (**D' =&3*3' A*(*' 6&1*' /A*1'!.3'<(!;;!&4.'20*' ./' .2*' (011;*' /,' &7*' / 3' /4' .2*' ..!-' -/&3.' 8 0!1&3' 3=' ' ! ' &41' ;!45' OOO=' $V@9' 2*' <*3.' D!41' -&6*',(/6' &77&1/-!&' <5' A&5'/,' !4/7*'82*4-*'-&;;*1' " ', " ' !<' $' ?' OOO!!!' $$U9' /(' .2(/0>2' 72*303' 8 .(&</'7'?CN9' .' A&3' &;3/',/041' !4' /(.2' ,(!-&' ' ;!45'OOO=' @9'*37*-!F &;;5'!4' >57.'&41'&.' &(.2&>*" &;3/'!4' 7&!4' &41' .2*' &;*&(!-' 3;&413' &41' *64 3' &41' R?3' 2*(*' A&3' &' .(*&.5',/(<!11!4>' .2*' *07/(.'/,'(011;*',(/6' */3' *0-*7.' /4;5'./' .2*43'8 !-D3' 6 ' '" " ' 7'$R?9' .' -/0;1' <*' &(.!,!-!&;;5' 7(/10-*1' <5'-&;-!4!4>' 5*;;/A' /-2(*' &' 1!3-/=*(5'10*'n

,&1*3 !. !4 A&.*(1&67 &41 ,/0; &!(,!(3. <;*&-2!. &41.2*4.0(4!.<;&-D 8 .&41&>* " , 1 " 7 @$9 2* 7!>6*4. &6 "*; &. " A&3 &;6/3. &;A&53 7(/10-*1 <5 -/6<03.!/4 ;5>4/.03 &41 !-/4 7(/10-*1!.<5 1(5!4> &41 <0(4!4> .2* ;**3 /, A!4* 8 (:1 " " 7*;;*3 A&3 .2* 1!3-/=*(*(/,H!=/(5<;&-D!# (" " ;!45]]] C@9 -/66/4 6&.*(!&; A&3 .2* 36/D* /, <0(4.(*3!4 8/0(;&67"<;&-D9 /(<0(4.7!4*".A!>3 8 !.(0= =!! $N $9 ;!45 8OOO= C$9 &;3/ 6*4.!/43 &4&.0(&; <;&-D7!>6*4.A2!-2 !3 1!,,!-0;./ !1*4.!,5" !. 6&5 <* 7*&. /(*;3* /O!1* /, !(/4 /(/O!1* /, 6&4>&4*3* 2* <*3. <;&-D7!>F 6*4.A&3 -&;;*1 " '" 8 (B " '" " 1/0<.;*33 .2* 3&6* &3 6 2!4*3* <;&-D I A2!-2 /(!>!4&;;5 ,/041 !.3 A&5./ .2* *3. .2(/0>2 41!& &41 .203 /<.&!4*1 !.3 &;.*(4&.!=* 4&6* /, H 41!&4 !4D I 0.!. -&44/. <* 03*1 ,/(,(*3-/*3 &41 4/ .(&-*3/, !. 2&=* <**4 ,/041 !4 .2* 60(&; 7&!4.!4>3 /, &4.!:0!.5 2* <;&-D G!4 .2*3* 7&!4.!4>3 !3 &;A&53 -&(</4&-*/03 /6* /, .2* (*6&!43 /, &4-!*4. -/;/0(3 &41 7&!4.!4>3 &. /67*!! &41 !4 .2* H &.23 /, !.03 I &41 /, !=!& &41 *;3*A2*(* A*(* &4&;53*1 <5 !(0672(5 &=5 8! - 77 TU"$@C 9- " " R " " ($ " "; , "1 : (" " 4 &4 *&(.2*4 =&3* ,(/6 .2* H &.23 /, !.03 I -/4.&!4!4>3 & =&(!*.5 /, -/;/0(3 .2* 7(/=*1 ./ <* (*1 /O!1* /, ;*&1 A!.2 .A/ !(/4 /-2(*3 /, 1!,,*(*4. .!4.3 &10;;*(*1 &41 &70(7;!32(*1H4*&(;5 /, .2* 3&6* .!4. &3 7(033!&.* /, -/77*(I &;; .2(** A*(* 6!O*1 A!.2 -2&;D /(-&(F </4&.* /, ;!6* 87 N9 2* 5*;;/A3 A*(* 70(* /-2(*3 6!O*1 A!.2 -&(</4&.* /, ;!6* &41 -2(* 6!O*1 A!.2 (*1 /O!1* /, ;*&1 &41 -&(</4&.* /, ;!6* 87 $NC9 2* <; A*(* & D!41 /, 36&;. A!.2 -&(</4&.* /, ;!6* 87 $N?9 , 1 " .2*(* A*(* .2(** =&(!*.!*3 H 4* A2!-2 &77(/&-2*1./ /;!=* A&3 .2* -/66/4 >(**4 *&(.2 /, *(/4& &4/.2*(A2!-2 A&3 7&; >(&33">(**4 2&1 .2* -2&(&-.*(/, -&(</4&.* /, -/77*(6!O*1 A!.2 -2&;D &41 & .2!(1 A2!-2 A&3 *& >(**4 A&3 & >(**4 -/6<!4&.!/4 /, -/77*(6!O*1 A!.2 <;0* -/77*(.!. I 87 $$N9 7&;* (/3*"-/;/0(*1 30<3.&4-* ,/041 !4 .2* H &.23 /, !.03 I A2!-2 !4 !.3 !4.*(!/(H 2&1 & ;03.(* &77(/&-2!4> ./ .2&. /, &(F 6!4* I A&3 ,/041 ./ <* *!.2*(/ =*>*.&<;*B /(&4!6&;/(!>!4 !, .2* ;&..*(!. A&3 6/3. 7(/<&<;5 & 37*-!6*4 /, 5(!&4 70(7;* 877 $$ "$V9 4 .2* " " 1 8,!> C9 .2* (*13 &41 5*;;/A3 A*(* &;; /-2(*3 .2* >(**43 7(*7&(&.!/43 /, -/77*(.2* <;0*3 H ;*0&41(!&4 ,(!. I .2* 70B;* & 6!0.0(* /, (*1 /-2(* &41 -&(</4&.* /, -/77*(.2* <(/"A4 6!0.0(*3 /, / 2(*3 &41 <;&-D .2* A2!.*3 A*(* &;; -&(</4&.*3 /, ;!6* 8,!a /(,0(.2*(1*.&!;3 ;!!64*(3 + (2 " 1 !=CVU"V$R g f K G 2;3*614 8$9 (**D 3*&">/1 0 (8@9 T " 7 &.!4 >(&6F 6&(!&4 /, !-*.!& #= .2* 3/4 /, & ,*6&;* 3;&=* *&-:0!(*1 &;*&(2*1*10-&F .!/4 A2!;3 &--/67&45!4> 2!3 6&3.*(3 3/4 ./"3-2//; &41 &,.*(2* 2&1 <**4 3*. ,(** .&0>2. &. /6* !4 .2* ,!(3.2&;/, .2* ,!(3. -*4.0(5 &,.*(2(!3 041*(!<*(!03 &41 ;&01!03 A!.2 *0.(&/(1!4&(5 30--*33 f!4 37!.* /, 2!3 .2/(/0>2;5 1!3(*70.&<;* -2&(F &-.*(g 2* *&(;!*(3-2/;&(3 &41 *37*-!&;;5 &((/ 2&1 6&1* .2* /;1*(;!.*(&.0(* .2* -*4.(* /, .23!(;!4>0!3.!-3.01!*3 &;&*6/4 &3 2*&1 /, & 4*A 3-2//; 1*=/.*1 2!63*; *37*-!&;;5./ *(>!; K03.&3 (**D ;!.*(&(5 -(!.!-!36 2&1 -/4-*4.(&.*1 1.3*; /4 /6*(f * 3/*63./ 2&=* .(*&.*1 >(&66&(!4 .2* 7(&-.!-&; 37!(!. /, & -;*=*(3-2//;6&3.*(&41 ./ 2&=* 1/4* 2!3 <*3. ./ 1*(!1* .2* 3-!*4.!,!-;&</0(3 /, &((/ !3 >(&66&(& 0=*4&; =!! @V$9 A&3 1/0<.;*33 60-2 -/430;.*1 <5 ;&.*(>(&66&(!&43 .!3 4/A ;/3. g 2* >(&66&(.2&. <*&(3 2!3 4&6* !3 A(/4>;5 &..(!<0.*1 ./ 2!6 # (/, *..;*32!7!4 . " , (1: O= $T@g ;,,!721.OR (**D &0.2/(A2/ ,/;F ;/A*1.2* *(!7&.*.!-72!;/3/725 *-/6F 7/3*1 !4 .2* C.2 -*4.0(5 - & 2!3./(!-&; &41 &;*>/(!-&;*07;&4&.!/4 /, (**D 65.23 !4 3*=*(&;</D3 ,.2!3 A/(D A* 7/33*33 /4;5 & 32/(. &<3.(&-. 7(/<&<;5 -/67/3*1 !4 .2* 5Q&4.!4* &>* 041*(.2* .!.;* '" '" + 4 ,/(6*(.!6*3 !. A&3 &,&=/0(!.*3-2//;</D J;3*3.(&# A(*3.;!4>3-2//;9 2*4&6* >!=*4 <5 .2* (**D3 ./ .2* 7;&-* !4 A2!-2 .2* 5/04> A*(* !43.(0-.*1 !4 A(*3.;!4>&41 </0!4> 041*(.2* >0!1&4-* /, & 6&3.*(-&;;*1 & 2*(* A*(* & -/4F 3!1*(&<;* 6!6<*(/,30-2 3-2//;3 &. .2*43 A2!-2 2&1 <**4 <0!;. 3/6* &. 70<;!-* *0" (9*43* 3/6* <5 7(!=&.* 041*(.&D!4> 4 &.*(.!6*3 .2*5 A*(* &;3/-/44*-.*1 A!.2 .2* 6: "< # @*&)& &41 @*& (E;J6*1*3 2* 3/4 /, &47;!03 &41 <(/.2*(/,8 &0 & 2*(/ /, .2* 7/3." /6*(!- -;*/, (/K&4 ;*>*41 1533*03 *4=!*1 2!3 A!31/6 &41 !4>*40!.5 &41 A&3 <*4./4 &=*4>!4> 2!63*;, /4 &;&6*1*3 ,/(1*.*-."

!4>' 2!>' ,*!>4*1' 6&14*33' --/(1!4>;5'2*' !3' 3&!1' ./' 2&=*' -/437!(*1' A!.2' ! 6*1*3' &41'1(/A4*1'2!6'A2!;3.'*4>&>*1'!4',!32!4>' /(' 8&--/(1!4>' ./'&4/.2*(' &--/04.9' .2*5'7*(" ">0&1*1' 2!6' ./' *4.*(' &' A*;;' !4' A2!-2' .(*&30(*' A&3' 3&!1' ./'<*'-/4-*&;B'&41'.2*4' /=*(A2*;6*1' 2!6' A!.2' 3./4*3' --/(1!4>' ./' /.2*(3' >!6*64 4' &;3/' 2&.*1' 2!6' &3' 2*&1' /,' .2*' 7*&-*' 7&(.5' &6/4>' .2*' (**D3' *' &--/(1!4>;5'>/.' 1533*03' &41' !/6*1*3' ./' -/4-*&;' !4' 2!3' .*4.' &' ;*..*(' 70(7/(.!4>' ./' <*' A(!..*4' <5' (!&6' &3' A*;;' &3' 3/6*' 6/4*5' &41' .2*4' &--03*' 2!6' &3' &' .(&!./(" A2*(*07/4' 2*' A&3' 3./4*1' ./' 1*&.2' <5' .2*' 6*/7;*' !3' <(/.2*(' 8 &3' !4,/(6*1' 2!3' ;&.2*(' /,' .2*' 3&1' *=*4.' <5' A(!.!4>' .2*' "4*A3' /4'&4'/&(' &41' .2(/A!4>'!.'!4./'.2*'3*&' 07/4' A2!-2' 2*' .//D' &' .*((!<;*'=*4>*&4-*' /4' .2*' (*.0(4!4>' (**D3' &' ') ' @9' &;&6*1*3' A&3' -/43!1*(*1'<5'.2*' (**.3' &3' .2*' !4=*4./(' /,' .2*' &;72&<*.' &41' /,' ;!>2.F 2/03*3'' &;3/' /,' 6*&30(*3' &41' A*!>2.3'&41' /,' 1!-*' &41'1(&0>2.3' &41' .2*' 1!3-03 !;*3' 2*' ./;!&4'>/11*33' /,'32*72*(13' *(' ,*3.!=&;' .2*' , ' /(' , ' 2*;1' G/4 7(!;' @$3.' A&3' 7(/7*(;5' &' 2*(136*43' ,*3.!=&;' ./' 7(/6/.*' .2*' ,(0!.,0;4*33' /,' .2*' ,;/-D3' &41' ./' 7*.(!,5' .2*' 3&-(*1' >(/=*3' ! 41',/04.&!43',(/6'&;;'04!4.*4.!/4&;' !4K0(5' /(' 7/;;0.!/4' -&03*1'<5'.2*' 2*(13' .' A&3' "1**6*1' .2*' &44!=*(3&(5' /,' .2*' ,/041!4>' /,' /6*' .2*' ,/(6*(' &</1*' /,'32*72*(13' "--/(1!4>;5'!.' A&3' -*;*<(&.*1' &.' /6*' &3' !4' .2*' =!;;&>*3' <5' .2*' A2/;*' /,' .2*' !42&<!F .&4.3' A!.2' .2*' &4-!*4.'(!.*3' /,'&' 32*72*(13' ,*3.!=&;' .' A&3' -03./6&(5' ./' 70(!,5' 2/03*' 3.*&1!4>' &41' 32**7' A!.2' 30;720(' &41' &3' &' "37*-!&;' 6*&43' /,' *07!&.!/4' ./' /,,*(' !4-*43*' ./>*.2*(' A!.2' &' 6!0.0(*' /,' .2*' <;//1' /,' .2*' -./<*(' 2/(3*&' 0 ' .2*' &32*3' /,' .2*' 04</(4' -&;' A2!-2' A&3' <0(4*1' &.' .2*' ,*&3.' /,' *;;43' &41' <*&4"3.(&A' A2!-2' A&3' /<.&!4/1' ,(/6' .2*' *3.&;3' 2*4' .2*3*' /;*64' 70(!,!-&.!/43' A*(*' /=*(' .2*' -2**(F ,0;' 7&(.' /,' .2*' ,*3.!=&;' <*>&4' /4,!(*3' A*(*' 6&1*' /,'3.(&A'&41' 2&5' .2*' 32*72*(13' ;*&7*1' &-(/33' .2*6' .2(!-*' -&D*3' /,' 6!;;*.' A*(*' &;3/' /,,*(*1' ./' .2*' >/11*33' &41' .2*' ,*3.!=&;' A&3' -/4-;01*1' <5' &' ,*&3.' !4' .2*' /7*4' &!(' ,.*(' .2*' @41' -*4.0(5' /,' /0(' *(&' .2*' ,*3.!=&;' A&3' -/6<!4*1' A!.2' .2&.' /,' 5 ' 7 ' &41' A&3' -*;*<(&.*1' &3' 2*(' <!(.21&5' A!.2' ,*3.&;' 7(/-*33!/43' &41' !(-*43!&4' >&6*3'A2!-2'-/4.!40*1'.!;;' .2*' ?.2'-*4.0(5 ; -!' A/' 37!(!.3' A/(32!77*1' !4' .2*' ".2*' 4*!>2<!0(2//1'/,' /04.' .4&!4' !-!;5' 43' <*4*=/;*4.' 1*!.!*3' &41' 7(/.*-./(3' /,' &>(!-0;.0(*' 2*5'&(*3/6*.!6*3'1*3-(!<*1' &3' 3/43' /,' 1(&403' &' 4&.!=*' 2*(/' 2/4/0(*1 .2(/0>2' .2*' A2/;*' /,' !-!;5' 3/6*.!6*3'/,' *72&*3.03' &41' .2*' 5672' B .4&' 3/6*F .!6*3' /,' L*43' &41' 2 ; &' &' 1&0>2.*(' /,' *72&*3.03' A2/' -/4-*&;*1' 2*(3*;,' !4' .2*' *&(.2' ,(/6' ,*&(' /,' *(&3'K*&;/035' A2*(*F 07/4' .A/' 2/.' 30;720(' 37(!4>3' <0(3.' /0.' /,' .2*'>(/041' *3!1*' .2*3*' 37(!4>3' 3/;*64' 7&.23' A*(*'.&D*4'*37*-!&;;5'!4';*>&;'7(/-**1F !4>3'.2*'3A*&(*('A2/'603.'2&=*' 7(*=!/03;5' D*7.' 2!63*;,'(/6' &;;' 1*,!;*6*4.' ./0-2!4>' .2*'<(!4D' !,' .2*' /&.2' A*(*' ,&!;3*'<;!41!4>' /('!43.&4.&4*/03'1*&.2',/;;/AB' --/(1!4>' ./' &4/.2*(' &--/04.' &' .&<;*.' !43-(!<*1' A!.2' .2*' /&.2' A&3' .2(/A4' !4./' .2*' A&.*('&41' 3A&6' /4' .2*' 30(,&-*' !,' .2*' /&.2' A*(*' .(0*' <0.' 3&4D' !4' .2*' -/4.(&(5'-&3*' A2!;*' ;&6*3' 1*=/0(*1' .2*' 7*(K0(*(' 2*' 4*!>2</0(!4>' 3&4/.0&!5' /,' .2*' &;!-!' 3*(=*1'&3' &4' /(&-;*' &41' &;3/' &3' &' 32*;.*(' ,/(' ,0>!.!=*' 3;&=*3' f !/1/(03' !-0;03'0!'RTg J!! &' ',*&3.'&6/4>'.2*' /6&43'2*;1' !4'2/4/0(*/,'.2*'>/11*33' ;*3'&

' U' B S' ' .&.0*'K.'.2*'5/04>*(' >(!77!4&'A!,*'/,' ;&01!03' 41' 6/.2*('/,' *(/'8 &7;*3' 03*06g

&;;&' ' /6&4'6&4.;*' A/(4'<5'A/6*4' -/43!3.!4>',/'&'3:0&(*'7!*-*'/,' -;/.2' A2!-2

6&.(/43 A/(* /=*(.2* / !4 .2* 3&6* A&5 &3 .;!* 6*4 A/(* .2* /1 2*5 ;*. /4* .2!(1 ,&; 1/A4 !4 ,(/4. /=*(.2* ;*,. 32/0;1*(<0. 1(*A .2* (*3. &A&5 /=*(.2* <&-D &41 .2*4 *!.2*(<(/0>2. !. ,/(A&(1 /=*(.2* (!>2! 32/0;1*(/(1(*A !. 041*(.2* (!>2. &(6 <0. !4 *!.2*(-&3* .2(*A .2* *41 <&-D /=*(.2* ;*,. &(6 /(32/0;1*(# -0.9 2* -/0;1 &;3/ <* 1(&A4 /=*(.2* 2*&1 K03. ;!D* .2* 1 .2*(A/6*4 A2/ A*(* 4/. 7(!=!;*>*1 ./ A*&(.2* A/(* .2* /=*(.2* .04!- ,/;1*1 ./F >*.2*(&</0. .2* </15 ,&3.*4*1 ./>*.2*(/4 .2* 32/0;1*(3 A!.2 <0-D;*3 &41 /7*4 /4 .2* (!>2. 3!1* /(2*;1 ./>*.2*(!4 .2* 3&6* A&5 A!.2 <0-D;*3 . .2*4 ;&5 1/&<;* /=*(.2* <(*&3. &41 <&-D <0. ,*;; 1/A4 !4 /4* .2!-D4*33 ./ .2* ,**.

&;;&1!06 8 (" 4 /;1 -&(" =*4 !6&>* !4 .2* -!.&1*; &. (/5 /4 A2!-2 .2* 7(/37*(!.5 /, .2* -!.5 1*7*41*1 . !3 3&!1 ./ 2&=* <**4 .2(** -0<!.3 2!>2 A!.2 ,**. 320. -;/3* ./>*.2*(&4 07(&!3*1 37*&(!4 !.3 (!>2. 2&41 &41 !4 !.3 ;*,. *!.2*(& 1!3.&, &41 37!41;* /(&32!*;1 .2*4* A&3 3&!1 ./ 2&=* 6&1* !. &3 &4 !6&>* /, &;;&3 1&0>2F .*(/, (!./4 A2/6 32* 2&1 3;&!4 04&A&(*3 A2!;* 7;&5!4> &. A(*3.;!4> *>*413 1!,,*(!4 .2*!(&--/04. /, .2* 6&44*(/, !.3 -/6F !4> ./ (/5 --/(1!4> ./ /4* /, .2*6 &;;&3 >&=* !. &3 & 1/A(5 ./ 2(53 .2* <(!1* /, &(1&403 n&41 2* <(/0>2. !. ./ &(1&4!& A2*4-* ;;03 -&((!*1 !. / (/5 &--/(1!4> ./ &4/.2*(L*03 -&03*1 !. /,&; 1/A4 ./ ;;03 & ,(/6 2*&=*4 !4-* (/5 -/0;1 4/. <* -/4:0*(*1 3/ ;/4> &3 !. 7/33*33*1 .2!3 !6&>* K 6*1*3 3./;* !. A!.2 .2* 2*;7 /, 1533*03 &41 <(/0>2. !. ./ (>/3 0. &--/(1!4> ./ .2* ..!- 3./(5 !. A&3 *6/72//4 8: = @9 /, .2*43 A2/ 1*7(!=*1 2!6 /, !. 2* 7&;;&1,!06 7(*3*(=*1 !4 /6* !4 .2* .*67;* /, *3.& A&3 .(&-*1 <&-D ./ ; 4*&3 .2* &33067.!/4 <*!4> .2&. .2*(* 2&1 <**4 &3*-/41 !6&>* !4 (/5 <*3!1*3 .2&. 3./;*4 <5 !/6*1*3 .2*(.&;!&4 ./A43 &;3/ </&3.*1 /, .2* 7/33*33!/4 /, &

&;;&1;03 &7 + . " &.!4 &0.2/(!4 .2* C.2 -*4.0(5 A2/ <5 </(((/A!4> ,(/6 .2* .*&-2!4> /, 2!3 7(*1*-*33/(3 &41 <5 2!3 /A4 *07*(!*4-* -/67/3*1 & A/(D 07/4 203<&41(5 !4 ,/0(F .**4 </D3 , .2*3* .2* ,!(3. -/4.&!43 >*4*(&; 7(*-*7.3 </D3 !!"0!!! >!=* .2* /7*(&.!/43 /, &>(!-0;.0(* !4 *&-2 /, .2* 30--*33!=* 6/4.23 A2!;* .2* ,/0(.**4.2 .(*&.3 /, .2* >(&,.!4> /, .(**3 !4 *!>2.5" ,!=* *;*>!&- -/07;*.3 !3 </D .2/0>2 A(!..*4 !4 1(5 &41 ,**<;* ;&4>0&>* A&3 60-2 03*1 !4 .2* !11;* >*3 /4 &--/04. /, !.3 7(&-.!-&; &((&4>*6*4.

&;;&3 8$9 &;;&3 .2*4*& 8@9 /4 /, .2* !.&,. (!03 203<&41 /, .50 ,&.2*(/ , !D*

8 9 /4 /, &41!/4 A2/ (/<<*1 2!3 <(/F .2*(/, .2* 1/6!4!/4 /, .2*43 <0. A&3 ./>*.2*(A!.2 2!3 ,!,.5 >!>&4.!- 3/43 3;&!4 <5 .2* 5/0.2,0, 2*3*03

&;;!&.& <(&4-2 /, /6&4 -/6*15 & " & * I

&;;!&6 2* /6&4 4&6* ,/(&;&(>* (*-!&4 -;/&D A2!-2 &3 &;3/ A/(4 <5 /6&43 &6/4> .2* (**D3 .&3 *37*F -!&;;5 .2* >&(< /, .2* 72!;/3/72*(3 4 /6* !. A&3 &;3/ A/(4 <5 -/0(.*3&43

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tory solemnity to the *Panathenæa*. There was a festival of the ordinary or *lesser Panathenæa* celebrated every year, and from the time of Pīsistrătus, the *great Panathenæa* held every fifth year, and in the third year of every Olympiad, from the 24th to the 29th of Hecatombæon. Pisistratus, in the year 566 B.C., added to the original chariot and horse races athletic contests in each of the traditional forms of competition. He, or his son Hipparchus, instituted the regulation, that the collected Homeric poems should be recited at the feast of *Rhapsōdi*. In 446 Pericles introduced musical contests, which took place on the first day of the festival, in the Odēum, which he had built. Competitions of cyclic choruses and other kinds of dances, torch races and trireme races, added to the splendour of the festival. The care and direction of all these contests were committed to ten stewards (*athlŏthĕtæ*), who were elected by the people for four years, from one great Panathenaic festival to the next. In the musical contests, the first prize was a golden crown; in the athletic, the prize was a garland of leaves from the sacred olive trees of Athene, together with large and beautiful vases filled with oil from the same trees. Many specimens of these Panathenaic vases have been found [in Italy, Sicily, Greece, and at Cȳrēnē. They have the figure of Athene on one side, and a design indicating the contest for which they are awarded on the other. Most of them belong to the 4th century B.C., 367–318; the "Burgon Vase," in the British Museum, to the 6th century. *Cp.* Pindar, *Nem.* x 35]. The tribe whose ships had been victorious received a sum of money, part of which was destined for a sacrifice to Pŏseidōn.

The culminating point of the festival was the 28th day of the month, the birthday of the goddess, when the grand procession carried through the city the costly, embroidered, saffron-coloured garment, the *peplus* (*q.v.*). This had been woven in the preceding nine months by Attic maidens and matrons, and embroidered with representations from the battle of the gods and Giants. It was carried through the city, first of all as a sail for a ship moving on wheels, and was then taken to the Acrŏpŏlis, where it adorned one of the statues of Athene Pŏlĭās. The procession is represented in a vivid manner in the well-known frieze of the Parthĕnōn. It included the priests and their attendants, leading a long train of animals festally adorned for sacrifice; matrons and maidens bearing in baskets the various sacrificial implements (*see* CANEPHORI); the most picturesque old men in festal attire, with olive branches in their hands, whence came their name, *thallŏphŏræ*; warriors, with spear and shield, in splendid array; young men in armour; the cavalry under the command of both the *hipparchi*; the victors in the immediately preceding contests; the festal embassies of other

* PANATHENAIC AMPHORA.
Inscribed ΤΩΝ ΑΘΗΝΗΘΕΝ ΑΘΛΩΝ, "a prize from Athens."
(Millingen, *Uned. Mon.*, pl. 1.)

states, especially of the colonies; and, lastly, the aliens resident in Athens. Of these last, the men bore behind the citizens trays with sacrificial cakes, the women waterpots, and the maidens sunshades and stools for the citizens' wives; while on the freedmen was laid the duty of adorning with oak-leaves the market-places and streets through which the procession moved. The feast ended with the great festal sacrifice of a hecatomb of oxen, and with the general banqueting which accompanied it. At the yearly minor *Panathenæa*, on the 28th and 29th of Hecatombæon, contests, sacrifices, and a procession took place, but all in a more simple style. In later times the festival was removed to spring, perhaps in consequence of Roman influence, in order to make it correspond to the *Quinquātrūs* of Minerva.

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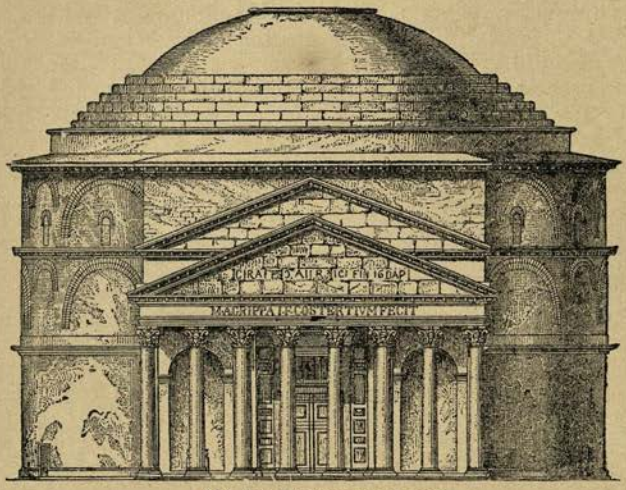
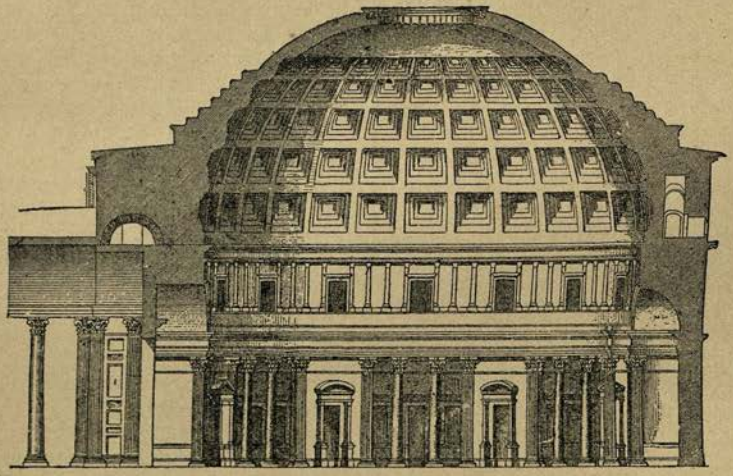
4/'/.2*(' <0!;1!4>' !3' ./' 32/A'03'.2*' 3/;!1!.5'
</;14*33' &41'37;*41/0(' /,' /6&4'&(-2!.*-F
.0(*' 2*' /(!>!4&;' /<(*-.' /,' .2*' .*67;*'
A2!-2'&--/(1!4>'./' .2*' !43-(!7.!/4' /4' .2*'
&(-2!.(&=*' /,' !.3' 7/(-2' A&3' <0!;.' <5'
>(!77&' !4' @U' !3' 04D4/A4' *' /4;5'
D4/A'.2&.'.2*'3*=*4'7(!4-!7&;'4!-2*3'/,'.2*'
!4.*(!/(' A*(*' /4-*' /--07!*1' <5' !6&>*3' /,'
.2*' >/13' *' 2&=*' *=!1*4-*' .2&.' &6/4>'
.2*6' A*(*' &(3' &41' ?403' .2*' 7&.(/4'
1*!.!*3' /,' .2*' 0;!&4' 2/0 *' &41' .2*' 1*!,!*1'
&*3&(' .2*' 7(!4-!7&;' (*7(*3*4.&.!=*' /,' .2&.'
2/03*' 4';&.*(' .!6*3' .2*' .*(6', " ("'
A&3' A(/4>;5' 30A/3*1'./' 6*&4' &1.*67;*' /,'
&;' .2*' >/13' 2!3' =!*A' 7(/67.*1' /7*

Boniface IV to dedicate the building, in 609 A.D., as a Christian church to the memory of all the martyrs, under the name of *S. Marīa ad Martўrēs* (now *S. Maria*



(1) THE PANTHEON, ROME.
(Front elevation.)

Rotonda, or simply *La Rotonda*). The building had already been repeatedly restored in ancient times by Domitian, Hadrian, and last of all, in 202 A.D., by



(2) THE PANTHEON, ROME.
(Longitudinal section.)

Septĭmius Sĕvērus and Caracalla. It consists of a circular structure, 142 feet 6 inches in height and inner diameter, with a portico 103 feet long formed by sixteen Corinthian columns 47 feet high. Eight

of these in front support a massive pediment, behind which rises another pediment of still higher elevation, resting against the square projection which connects the portico with the dome. The other columns divide the portico into three parallel portions, originally vaulted over. In the interior of the portico on each side of the entrance are two niches, which formerly contained colossal statues of Augustus and Agrippa. The massive walls of the great rotunda, which is completely circular in form, are divided by ring-cornices into two

3./(!*3 &4 077*(" &41 &;/A*(</=*.2*3* 37(!4>3 &-07/;&/ -/4-(*.* /,=&3.*(1!6*4F 3!/43 .2&4 &45 .2&. 2&1 <**4 &..*6 7.*1 !4 7(*=!/03 .!6*3 2* 1!&6*.*(/, .2!3 ;/,.5 -07/;& -/((*37/413 ./.2&. /, .2* =&3. -5;!41(!-&;<0!;1!4>/4 A2!-2 !.(*3.3 2* A&;;3 /, .2* ;&..*(" &(* $T ,**. .2!-D 2* !4.*(!/(" /, .2* -07/;& !3 1!=!1*1 !4./ ,!=* / ,1**7;5 304D 7&4*;3 # " @R !4 *&-2 (/A . !.3 =*(.*0 &4 /7*4!4> &</0. @U ,**. !4 1!&6*.*(" ;!>2.3 .2* A2/;* / ,.2* !4.*(!/(" # -0.39 2* >!;."<(/4Q* .!;*3 /,.2* (//, A*(* .&D*4 <5 .2* *67*(/(" /43.&43 ./ /43.&4.!4/7;* !4 ?W 2* (*6&!43 /, .2* -/3.;5 6&(<;* A&;;"* ;!4!4>3 /, .2* !4.*(!/(" A2!-2 1&.*1 ,(/6 .2* ;&3.(*3./(&.!/4 &41 -/43!3.*1 /, V? G-/67&(.6*4.3 1!=!1*1 <5 $$@ /(!4.2!&4 -/;0643 &41 -/=*(*1 A!.2 A2!.* 6&(<;* 7/(725(5 3*(7*4.!4* &41 7&=/4&Q*../ A*(* 4/.-&((!*1 /,, 4.!; $UCU 4 $? @ .2* >!(1*(3 /, >!;1*1 <(/4Q* A2!-2 307F 7/(.*1 .2* (//, /, .2* 7/(.!-/ A*(* 6*;.*1 1/A4 <5 (<&4 d ;; ./ <* -&3.!4./ 7!;;&(3 ,/(.2* <&;1&--2!4/ !4 . *.*(3 f&41 !4./ -&44/4 ,/(.2* -&3.;* /, 4>*;/g &4./6!603 2* (*7(*3*4.&.!/4 /,& 1(&6&.!-30<(*-.<5 1&4-!4>&41 (25.26!-> *3.!-0;&.!/4 &;/4* &3 7(&-.!3*1 e .2* B6&43 ./(!>!4&.*1 !4 .2* -03./6 /, .2* &46*4. /6&4 1(&6& /, /4;5 &;;/A!4> &4 &-./(" /4 .2* 3.&>* ./6&D* .2* 4*-*33&(5 6/=*6*4.3 /, 1&4-!4> &41 >*3.!-0;&.!/4 A2!;* &4/.2*(" &-./(" 3&4> .2* (*-!.&.!=* ./ .2* &--/67&4!6*4. /, .2* ,;0.* 2!3 (*F -!.&.!=* A&3 -&;;*1 " &41 A&3 & 6/4/;/B* -/67/3*1 !4 (25.26!-&;,/(6" 2* !;;03.(&.!=* 104-* A&3 (&!3*1 ./ & 3*7&(&.* !41*7*41*4.<(&4-2 /, &(. <5 , ! &41 (: 041*(" 0>03.03 @@ - 2*(* A*(* -/6!- &41 .(&>!-7&4F ./6!6*3 <0. .2* ;&..*(" =&(!*.5 7(*=&!;*1 G/4 .2* 3.&>* /, .2* 67!(*' 2* 30<(*-.3 A*(* -2!*,;5 .&D*4 ,(/6 .(&>*1!*3 ,/041*1 /4 65.2/;/>!-&;;/=* 3./(!*3 &41 .(*&.*1 3/ .2&. .2* -2!*,3!.0&.!/43 A*(* !4-;01*1 !4 "& 3*(!*3 /, " :;/, .2*3* A*(* (*7(*3*4.*1 <5 & 3!4>;* " " .2* 1&4-*(" &3 A*;;& 3 .2* 7*(,/(6*(" <*!4> G1*3!>4&.*1 <5 .2&. 4&6** .203 2&1 ./ (*7(*3*4. 3*=*(&;-2&(&-.*(3 6&;* &41 ,*6&;** !4 30--*33!/4 A2!;* & -2/(03 &-F -/67&4!*1 <5 ,;0.*3 &41 /.2*(" !43.(06*4.3 (3&4> .2* -/((*37/41!4> 3/4> 2* 7&03*3 4*-*33&(5 ,/(" .2* -2&4>* /, 6&3D &41 -/3.06* ,/(" *&-2 30--*33!=* 7&(. A*(* &7F 7&(*4.;5,!;;*1 07 A!.2 .2* (*-!.&;/, 6 03!-5 .2* -2/(03 A2!-2 3*(=*1 ./-/44*-. .2* "-2!*,3-*4*3 A!.2 *&-2 /.2*(.A&3 /4;5 !4 .2* ;&.*3. .!6*3 /, .2* 67!(* .2&. A/6*4 A*(* *67;/5*1 !4 7&4./6!6* &4./6!6*>&!6!4>&. 3*430&;-2&(6&;/4* A*4.<*5/41 &;; </0413 /, 1*-/(06!4 .2* (*7(*3*4.&.!/4 /, 1*;!-&* 30<(*-.3 3 &4 041*(3.&41!4> /, .2* 30<.;*.!*3 /, .2* &(. (*:0!(*1 &0;.!=&.*1 .&3.* 7&4./6!6* A&3 37*-!&;;5 ,&=/0(*1 <5 .2* 2!>2*(" -;&33*3 A2!;* .2* A!.2 2!3 <0,,//4*(5 A&3 6/(* 7;*&3!4> ./ .2* 60;.!.01* 4 .2* .(0* 1(&6&.!-<&;;*. /, !67*(!&; .!6*3 * ((&45&3!3 f:0&4.!.5 1/0<.,0;* =!*403 , ("$UV 6&D*3!.!, " : 2*(* A&3 &4/.2*(" ,/(6 , " : [(**D 7/*./, &;!-&(4&3303 04-;* /, *(?1?.03 * A&3 70./ 1*&.2 <5 .2* .5(&4. 5>" 1&6!3 &</0.CVC ,/(" <*!4> .2* ;*&1*(" /, .2* &(!3./-(&.!-7&(.5 * -/67/3*1 &7/*6 !4 ,/0(.**4 <//D3 *4.!.;*1 8*07;/!.3 /, *(&-;*39 A2!-2 A&3 (*-D/4*1 <5;&.*(" A(!.*(3 &6/4> .2* <*3.*7!-3 2* ,*A ,(&>6*4.3 7(*3*(=*1 &(* !4 &4 *;*>&4. &41 >(&-*,0;3.5;* 1 &' F 0 1 # #1 .%#! 2* 6/3. !6F 7/(.&4. &6/4> .2* /6&4 K0(!3.3" </(4 &</0. $CN &-/4.*67/(&(5 &41 ,(!*41 /, .2* *67*(/(" *7.!6!03 *=*(03 A2/6 2* &--/67&4!*1 /4 2!3 *07*1!./4 ./ (!F .&!4 !4 .2* -&7&-!.5 /, *=*(03 /4 2!3 1*&.2<*1 &. /(D ;*,. ./ 2!6 .2* >0&(1!&432!7 /, 2!3 3/43 *.& &41 &(&-&;;&* 5*. .2* ;&..*(" -&03*1 &7!4!&403 ./ <* 70. ./ 1*&.2 !4 .2* 4*0. 5*&(" @$@ /4 .2* 1&5 &,.*(" .2* 60(1*(/, 2!3 <(/.2*(*.& ,&;;2!3 A/(D3 .2* .2!(.5"3*=*4 </(D3 /, T " 8;*>&;: 0*3.!/439 &41 .2* 4!4*.**4 <//D3 /, 7 " 8;*>&;1*-!F 3!/439 A*(* -/43!1*(*1 .2* 6/3. !67/(.&4. !;;.2* .!6*/, 03.!4!&4 .2*3* ,(6*1 .2* 40-;*03 /, .2&. 7&(. /, K0(!37(01*4-* A2!-2 A&3 -/44*-.*1 A!.2 .2* *07;&4&.!/4 /, .2* /(!>!4&; &0.2/(!.!*3 /4 /6&4 ;&A * /4;5 7/33*33 ,(&>6*4.3 /, .2*6 !4 .2* ,/(6 /, 406*(/03 *0-*(7.3 !4 .2* H !>*3. I # ") 3 " + ,.7;(!03 #, " 3) (&7713 *443 $) " &7703 (**D 6&.2*6&.!-!&4 /, ;*0&41(!& A2/ ;!=*1 &</0. .2* *41 /, .2* C.2 -*4.0(5 * 3.!;; 7/33*33 2!3 ($ " !4 *!>2. //D3 -/43!3.!4> /, *0.(&-.3 ,(/6 406*(/03 6&.2*F 6&.!-&; A(!.!4>3 /, >(*&.!67/(.&4-* ,/(" .2* 2!3./(5 /, 6&.2*6&.!-3 27B03 F 0) '=/2%#% -2&(&-.*(!3.!- /.* *

!41!37*43&<;* 7&(. / , .<* -2/(03 !4 .2* ;1
..!- -/6*15 </0. .2* 6!11;* / , .2* 7!*-* b52*4 .2* &-.!/4 / , .2* 7;&5 2&1 <**4 1*=*;/7*1 07 ./ & -*(.&!4 7/!4. .2* -2/(03 A2!-2 2&1 07 ./ .2!3 .!6* .0(4*1 ./A&(13 .2* &-./(3 /4 .2* 3.&>* 4/A .0(4*1 ./ .2* &01!*4-* 2!3 3.*77!4> ,/(A&(1 ./A&(13 .2* &01!*4-* !3 !.3*;;&;3/ .*(6*1 4 .2!3 7/3!.!/4 .2*5 6&1* &4 &77*&;. / .2!* %70<;!- /4 <*2&;, / , .2* 7/*. A2/ -/0;1 .203 >!=* *07(*33!/4 ./ 2!3 7*(&/4&; =!*A3 &41 A!32*3 &41 /,,*(&1=!-* &3 A*;;& &3 *07;&!4 .2* 70(7/(. / , 2!3 7;&5 *.- 2!3 &11(*33 3./!1 A2/;;5 /0.3!1* .2* &-.!/4 / , .2* 7;&5 2*4 .2* A&3 /6F 7;*.* A2!-2 A&3 3*;1/6 .2* -&3* !. -/4F 3!3.*1 / , 3*=*4 7&(.3 7&(.;5 37/D*4 <5 .2* ;*&1*(/ , .2* -2/(03 7&(.;5 304> <5 .2* -2/(03 4* / , .2*3* 7&(.3 A&3 -&;;*1 .2* !4 &4&(((/A*(3*43* &41 -/43!3.*1 -2!*,;5 / , &4&73*3.!- .*.(&6*.*(3
J(B;! !. H .2* 7*/7;* / , .2* -/&3. ;&41 I & / ; "
&(&3-*4!06
&(&3!.* 8 (;!. H &<;* -/6F 7&4!/4!9 *4/.*1 /(!>!4&;;5 &6/4> .2* (**D3 .2* 7(!*3. 3 &33!3.&4. A2/8;!D* .2* 7(!*3.9 (*-*!=*1 2!3 3077/(. ,(/6 .2* /,,*(F !4>3 6&1* ./ .2* .*67;* !4 (*.0(4 ,/(-*(.&!4 3*(=!-*3 2*3* 3*(=!-*3 !4-;01*1 -/;;*-.!4> &41 D**7!4> .2* 077;!*3 / , -/6 10* ./ .2* .*67;* 2*;7!4> &. -*(.&!4 3&-(!F ,!-*3 &41 7(*7&(!4> .2* <&4:0*.3 -/44*-.*1 A!.2 -*(.&!4 ,*3.!=&;3 W (" 7 @ Cg 2* &33!3.&4.3 / , -!=!;* / ,,!-!&;3 A2/8;!D* .2*;&..*(9 A*(* 6&!4.&!4*1 &. .2** *07*43* / , .2* .&.* A*(* &;3/ -&;;*1 7&(&3!.*3 !4 6&45 7;&-*3 W @ Vg 2* A/(1(*-*!=*1 :0!.* &4/.2*(6*&4!4> !4 .2* 6!11;* &41 ;&.*((**D 6*15 A2*(* !. 6*&43 .2* 2&4>*(/4 A2/ ;&53 2!63*;, /0. , /(7;&5F !4> .2* ,;&..*(*(&41 <0,,//4 A!.2 &=!*A ./ >*..!4> !4=!.*1 ./1!44*(2* 7&(&3!.* A&3 .(&43,*((*1 &3 & 3.&41!4> -2&(&-.*(./ .2* /6&4 !6!.&!/43 / , (**D -/6*15
&(&3. 3 /) &6
&(-3 2* .&;!&4 >/11*33*3 / , &.* &$ 0. 7
&(*4.&0& 2*>*4*(&;,*3.!=&;!4 2/4/0(/ , 1*-*&3*1 (*;&.!=*3 -*;*<(&.*1 <5 .2* /6&43 ,(/6 *<(0&(5 $ .2 ./ @$3. & 0
&(!&4 2(/4!-;* &$(" "* /(A 6&(<;* .&<;*.* ,/041 &. &(/3 !4 $?@U 4/A f&6/4> .2* (041*; &(<;*3 !4 .2* 4!=*(3!.5 &;;*(!*3 &. 0,/(1 . !3 A(!..*4 -2!*,;5 !4 .2* ..!- <0. 7&(.;5 !4 .2* /4!&4 1!&;*-. &41 /43!3.3 / , 4!4*.5 .2(** ;!4*3 3/6* / , A2!-2 &(* 4/ ;/4>*(-/67;*.* ./(!>!4&;;5 -/4.&!4*1 &40 6<*(/ , 1&.*3 / , .2* 7/;!.!-&; <0. -2!*,;5 / , .2* (*;!>!/03 &41 ;!.*(&(5 2!3./(5 / , .2* (**D3 ,(/6 .2* .2*4!&4 D!4> *-(73 ./ .2* .2*4!&4 &(-2/4 !/>4*.03 @?C " ! !4 !.3 7(*3*4. -/41!.!/4 2/A*=*(!. /4;5 >/*3 1/A4 ./ VC ;;* .2* 1&.*3 &(* >!=*4 &--/(1!4> ./ ..!- D!4>3 &41 &(*2/43 &41 .2* 2!3./(-&; &0.2/(!.!*3 /4 A2!-2 !. 1*F 7*413 603. 2&=* <**4 ..!-&0.2/(3 2* /(!>!4 &41 &!6 / , .2* .&<;*.&(* 04D4/A4 f .&3 ,!(3. 70<;!32*1 <5 *;1*4 !4 $?@R !. 2&3!4-* <**4 7(!4.*1 <5 /*-D2 &$ " 6 !! 4/ @ UC9 A2/-/43!1*(3 .2&. ,2* ;*&1!4> &0.2/(!.5 ,/;;/A*1 !3 2&4!&3 /, (`3V3 &41 &;3/ <5 0;;*(A 1 &(4!&_ 1; ;,&& 2 f #(!V V"TN g ;<(;3 8/(- " (9 2* 3*-/41 3/4 /, (!&6 &41 *-0<& !3 6/.2*(2&=!4> 1(*&6.<*,/(* .2!3 <!(.2 .2&. 32* 2&1 <(/0>2. ,/(.2 &, !(*<(&41 A2!-2 3*. &;; (/5 !4 ,;&6*3 (!&6 2&1 .2* 4*A"</(4 <&<* *07/3*1 /4 /04. 1&<5 .2* &1=!-* /, 2!3 3/4)3&-03 *(* & 32*"<*&(30-D;*1 .2*<&<*, /(,!=*1&53 .2*4 &32*7F 2*(1 ,/041 2!6 &41 (*&(*1 2!6 A!.2 2!3 /A4 -2!;1(*4 &(!3 A/4 .2* 4&6* / , - " &P7(/.*-./(/ , 6*4 I <5 2!3 <(&=*(5 & &32*72*(1 1*,*41!4> 2*(136*4 &41 -&..;* 4 /04. 1& 2* 6&((!*1 8 4/4 1&0>2.*(/ , .2* (!=*("> /1 <(*4 *1*-!1*1 .2* 3.(!,* / , .2* >/11*33*3 (& 72(1!.* &41 .2*4*, / (.2* >/;1*4 &77;* / , (;3 & ') 2&=!4> <**4 &77/!4.*1 &(<!.*(<5 *(6*3 &. .2* -/6F 6&41 / , L*03 &(!3 7(*,*((*1 .2* 7/33*3F 3!/4 / , .2* ,&!(*3. A/6&4 7(/6!3*1 2!6 <5 72(/1!.* ./ 7/A*(&41 (!-2*3 /(A!31/6 &41 ,&6* 7(/6!3*1 <5 *(& &41 .2*4* (*37*-.!=*;5 * .2*(*,/(* &A&(1*1 ./ 72(/1!.* .2* 7(!3* / , <*&0.5 <0. 1(*A 07/4 2!63*;, &41 2!3 ,&.2*(;&41 .2* !((*F -/4-!;&<;* 2&.(*1 / , .2* >/11*33*3 A2/6 2* 2&1 7&33*1 /=*(2*4 (!&6 A&3 /4-* -*;*<(&.!4> ,04*(&; >&6*3 !4 6*6/(5 / , 2!3 ;/3.3/4 &41 -/6 6&41*1 .2* ,!4*3. <0;;* !4 &;;* .2* 2*(13 >(&Q!4> /4 .2* 6/04.&!4 ./ <* </0>2. &3 & 7(!Q* &(!3 -&6* ./ (/5 &3 !.3 1(!=*(* .//D 7&(. !4 .2* -/4.*3.3 &41 =&4:0!32*1 2!3 </.2*(3 *=*4 *-./(G *!Q*1 A!.2 *4=5 .2*5 A!32*1 ./D!;;* 2!6 <0. &33&41(& (*-/>4!3*1 2!6 &41 2* A&3 K/5,0;;5 (*-*!=*1 <5 2!3 7&(*4.3 4 37!.* / , .2* A&(4!4> / , .2* , /(3&D*4 8 4/4* A2/ 3.!;; ;/=*1 2!6 .*41*(;5 &(!3 3* /0. /4 & =/5&>* ./ 7&(.& &. .2* !43.!>&.!/4B / , 72(/1!.* *(* 2* -&((!*1 / , , *;*4 .2* A!, / , *4*;D03 A2/6 .2* >/11*33 2*(

.!&413/6*' 3.(&4>*(' d !.2' 2*(' 2*' -&((!*1' &A&5' .2*' .(*&30(*3' /,' 213' 2/3.' &41' <(/0>2.' 2*(' .2(/0>2' >57.' &41' 2/*4!-!&' ./' (/5' 4' .2*' &(' .2&.' &(/3*' ,(/6' 213' 1**1' &(!3 32/A*1' 216 3B,' &--/(1!4>' ./' /..!*(' 3/6*F .!6*3' =&;!&4.' &41' -/0(&>*/03' *37*-!&;;5' &3' &4' &(-2*('<0.' -2!*,;5' 4;5' &.' .2*' 7*(30&3!/4' /,' /.2*(3" &.' /.2*(' .!6*3' -/A&(1;5' &41' *,,*6!4&.*' 2*' (/K&43' 1*.*3.*1' 216' &3' .2*' -&03*' /,' .2*' 1!3&3.(/03' A&(' ,.*(' 2*' 2&1' .(*&-2*(/03;5' 3;&!4' -2!;;*3' & ' 2*' 216 3*;,' A&3' ,&.&;;5' A/041*1' <5' &4' &((/A' /,' *(&-;*3' A2!;*' !4' !4>;*' -/6<&.' A!.2' 2;;/-.*.*3' !3' -/(73*' A&3' 1!32/4/0(*1' <5' *4*;&03' <0.' 5*.' A&3' &,.*(A&(13' >!=*4' ./' .2*' (/K&43' ,/(' <0(!&;' --/(1!4>' ./' &4F /.2*(' &--/04.' A2*4' 2*' D4*A' 213' 1*&.2' A&3' 4*&(' 2*' &3D*1' ./' <*' -&((!*1' ./' 8 4/4*' 2*4' .2*5' 2&1' 7&(.*1' 32*' 2&1' <!11*4' 216' -/6*' ./' 2*(' !,' 2*' 32/0;1' *=*(' <*' 6/(F .&;;5' A/041*1" <0.' 4/A' 6!41,0;' /,' .2*' 3/((/A' 32*' 2&1' *410(*1' 8 4/4*' (*(*-.*1' 216' &41' 2*' 1!*1' 3//4' &,.*(' 213' (*.0(4' ./' (/5' 2*4' 8 4/4*' (*7*4.!4>' /,' 2*(' -(0*;.5' 2&3.*4*1' A!.2' .2*' (*6*15' &41' ,/041' 216' &;(*&15' 1*&1' 32*' 2&4>*1' 2*(F 3*;,' 4' 3-0;7.0(*' &(!3' !3' (*7(*3*4.*1' &3' &' <*&0.!,0;' <*&(1;*33' 5/0.2' A!.2' &' 2(5F >!&4' -&7

&(6&' 2*' -!(-0;&(' ;*&.2*(4' 32!*;1' /,' .2*' /6&4' ;!>2.' !4,&4.(5' &' '&($

&44 4,1*3' ' (**D' 72!;/3/72*(' &41' 7/*.' </6 /,' &4' !;;03.(!/03' ,&6!;5' &</0.' V$N' '&.' ;*&' !4' /A*(' .&;5' *' A&3' 2*;1' !4' 2!>2' *3.**6' <5' 213' ,*;;/A'-!.!Q*43' /4' &--/04.' /,' 213' *0-*;;*4.' ;*>!3;&.!/4' ./' A2!-2' .2*5' &3-(!<*1' .2*' 7(/37*(!.5' &41' A*&;.2' /,' .2*' ./A4" &41' &;3' /4' &--/04.' /,' 213' *0*67;&(5';!,*' 'H' &(6*4!1*&4' ;!,*' I' A&3' 7(/=*(<!&;' &6/4>' .2*' (**D3' f *<*3' '@g' !..;*' 6/(*' !3' D4/A4' /,' 213' <!/>(&725' .2&4' .2&.' 2*' 3./77*1' &.' .2*43' /4' &' K/0(4*5' !4' 213' 3!0.5",!,.2' 5*&(' &41' .2*(*' <*-&6*' &-:0&!4.*1' A!.2' .2*' 5/0.2,0;' /-(&.*3' *' !3' .2*' -2!*,' (*7(*3*4.&.!=*' /,' .2*' ;*&.!-' 72!;/3/725' !D*' 213' >(*&.' .*&-2*(']`4?72&4*3' 2*' &;3/' ,/(60;&.*1' 213' 72!;/3/72!-&;'=!*A3'!4' &'1!1&-.!-'7/*6' "' > .2*' ,/(6' /,' A2!-2' A&3' -/4F 3!1*(*1' !4&(.!3.!-' f !-*(/' '!!' UCg' --/(1!4>' ./' .2*' 7(/*6' A2!-2' 2&3' <**4' 7(*3*(=*1' 8A2!;*' A*' /4;5' 7/33*33' ,(&>F 6*4.3' /,' .2*' (*3.9' .2*' A/(D' -/43!3.*1' /,' .A/' 1!=!3!/43' 2*' ,!(3.' .(*&.*1' /,' .2*' .(0.2' .2*' 3*-/41' /,' .2*' A/(;1' /,' !;;03!/4' .2&.' !3' .2*' A/(;1' /,' .2*' 3*43*3' &41' .2*' *((/4*/03' /7!4!/43' /,' 6&4D!41' ,/041*1' 07/4' .2*6' 4' 213' /7!4!/4' .(0.2' ;!*3' !4' .2*' 7*(-*7.!/4' .2&.' *0!3.*4-*' !3' &41' *(((' !4

.2*' !1*&' .2&.' 4/4"*0!3.*4-*' &;3/' -&4' <*' /.2!4>' -&4' 2&=*' (*&;' *0!3.*4-*' <0.' A2&.' !3' -/4-*!=&<;*' .2*(*,/(*' ./' <*' !6&>!4*1' &41' ./' <*' &<;*' ./' *0!3.' &(*' .2*' 3&6*' .2!4>' &41' .2*(*' !3' 4/' 1*=*;/76*4.*" .2*' *33*4-*' /,' A2&.' !3' -/4-*!=&<;*' !3' !4-&7&<;*' /,' 1*=*;/7F 6*4.' !67*(!32&<;*' !6 60.&<;*' 04</041*1' &41' !41!=!3!<;*" A2&.' !3' =&(!/03' &41' 60.F &<;*' &;;' 1*=*;/76*4.' !3' &' 1*;03!=*' 72&4./6" 7*(-*7.!/4' !3' .2/0>2.' 1!(*-.*1' ./' .2*' 70(*' *33*4-*' /,' <*!4>" .2*' 72*4/6*4&;' A/(;1' !3' &' 1*;03!/4' &41' .2*' /7!4!/43' ,/(6*1' -/4F -*(4!4>'!.'-&4'/4;5' <*' !67(/<&<;*

&(1113' &6 ' '.*-24!-&;' .*(6' /,' .2*' (**D' 1(&6&' 03*1' ./' 1*4/.*' 8$9' .2*' *4.(&4-*' /,' .2*' -2/(03' 07/4' .2*' /(-2*3.(&" 8@9' .2*' 3/4>' A2!-2' .2*5' 3&4>' A2!;*' *4.*(F !4>" 8 9' .2*' 7&33&>*' <5' A2!-2' .2*5' *4.*(*1' & '

&((2D3;03' ',&6/03' 8 (**D' 7&!4.*(' /,' 72*303' A2/' A!.2' *00!3' .=&3' .2*' -2!*,' (*7(*3*4.&.!=*' /,' .2*' /4!-' 3-2//;' *' ;!=*1' &</0.' CNN' □ ' &.' .2*43' A2*(*' 2*' 3**63' ./' 2&=*' (*-*!=*1' .2*' -!.!Q*432!7' -F -/(1!4>' ./' .2*' &--/04.3' /,' &4-!*4.' A(!.*(3' 2*' ,!(3.' !4.(/10-*1' !4./' 7&!4.!4>' .2*' .2*/(5' /,' 206&4' 7(/7/(.!/43' >&=*' ./' .2*' ,&-*' 1*;!F -&.*' 32&1*3' /,' *07(*33!/4' &41' A&3' & 6&3.*(' !4' .2*' -&(*,0;' 1(&A!4>' /,' -/4./0(3' f ;!4K' > ']]]' ?U ?Rg' !3' 3D!;;*' !4' !41!-&.!4>' =&(!*.!*3' /,' 735-2/;/>!-&;' *07(*33!/4' -/0;1' <*' &77(*-!&.*1' !4' .2*' 7!-.0(*' (*7(*3*4.!4>' .2*' .2*4!&4' .&.*' /(' % # TU $!4' A2!-2' &--/(1!4>' ./' &4-!*4.' &0.2/(3' 2*' 1!3.!4-.;5' 7/0(.(&5*1' &;;' .2*' -/4,;!-.!4>' :0&;!.!*3' /,' .2*' .2*4!&4' 4&.!/4&;' -2&(&-.*(' fQV' ?Th' 4/.2*(' /,' 213' 7!-.0(*3' (*7(*3*4.*1' .A/' </53' /4*' /,' A2/6' 3**6*1' ./' 7*(3/4!,5' .2*' 7*(.4*33' &41' .2*' /.2*(' .2*' 3!67;!-!.5' /,' </52//1' % ' UNg' !3' !4-;!4&.!/4' ./' (*7(*3*4.' *0-!.*1' 3.&.*3' /,' 6!41' !3' &..*3.*1' <5' .2*' -2/!-*' /,' 30<K*-.3' ;!D*' .2*' ,*!>4*1' 6&14*33' /,' 1533*03' f ;0.&(-B' *' " ' , ' g' &41' .2*' &4>0!32' /,' 2!;/-.*.*3' !4' *64/3' W " (' '!!' CR' Vg' !3' 307F 7/3*1' -/4.*3' A!.2' L*00!3' !3' A*;;' D4/A4' 2*' >(&7*3' 7&!4.*1' <5' L*00!3' 1*-*!=*1' .2*' <!(13' A2!-2' .;*A' ./' 7*-D' &.' .2*6' A2!;*' .2*' 0(.&!4' 7&!4.*1' <5' &((2&3!03' 1*-*!=*1' L*00!3' 216 3*;,' f ;!45' ' ?Vg

&((!-!1*' 8 &.' &--/(1!4>' ./' .2*' 030&;' <0.' =*(5' 1/0<.,0;' *07;&4&.!/4' 1*(!=*1' ,(/6' H 60(1*(' /,' &,&.2*(' I9' '.*(6' 03*1' &6/4>' .2*' /6&43' ,/(' .2*' 60(1*(' /,' &45' (*;&.!=*' A!.2' A2/6' /4*' !3' 04!.*1' <5' </413' /,' <;//1' /(' 10.5' <0.'3/6*.!6*3' &;3/' ,/(' .(*&3/4' &41' (*<*;;!/4' &>&!43.' /4*3' -/04.(5' 4' *&(;!*(' .!6*3' .2*' *O&6!4&.!/4' !4' .(!&;3' ,/(' 2/6!-!1*' A&3' "2

10-.*1 <5 .A/ 6 /4 A</6 !. A&3 &;3/ !4-06<*4. ./ <(!4> .2* &--03&.!/4 <*,/(* .2* ,/(' .(!&; 0;;& .(&43,*((*1 .2* 1*-!3!/4 !4 &;-& -&3*3 /, 7&((!-!1* .// & 3.&41!4> .(!<04&; # S. ! !/) A2!-2 2&1 &;3/ ./ .(5 -&3*3 /, &33&33!4&.!/4 &41 7/!3/4!4> 2* 704!326*4.,/(' 7&((!-!1* A&3 1(/A4!4> !4 & ;*&.2*(4 3&-D & !4./ A2!-2 A*(* 3*A4 <*3!1*3 .2* -(!6!4&; & 1/> &/-/-D &=!7*(&41 &4 &7* f !-*(/ 7 UN 0=*4&; =!!! @$Cg 2* 60(1*(' /, (*;&.!/43 !4 /.2*(' 1*>(**3 /, (*;&.!/432!7 A&3 704!32*1 <5 /0!;* # " 1") &

2* -/67/3*1 .2* /4;5 A/(D /, 2!3 =52!-2 2&3 30(=!=*1 041*(.2* .!.;* SE (@ ; 2!3 !3 &-/;;*-.!/4 /, .2!(.5"3!3 7(/3* 3./(!*3 /, 042&775 ;/=*(3 -/67!;*1 ,(/6 &4-!*4.7/*.3 *37*-!&;;5 ,(/6 .2/3* /, .2* ;*0&41(!4* 3-2//; 7&(., (/6 .2* ;!>2. !. .2(/A3 /4 .2* ;*0&41(!4* 7/*.3 /, A2/3* A/(D3 !. -/4.&!43 ,(&>F 6*4.3 !.2&3 & 37*-!&; 4.*(*3. &3 & 7(*F -0(3/(' /, .2* (**D 4/=*; &(.2*4/4 #6 P 2* 6&!1*4 3 -2&6<*(I 7&(.!-0;&(;5 &.*67;* /, .2*4* , (" 8.2* =!(>!4 >/11*339 *37*-!&;;5 .2&. /4 .2* -(/7;!3 /, .2*43 1!3.!4d >0!32*1 <5 .2* >(&41*0(' /, !.3 1!6*43!/43

8$9 ' ^ ^

&M 'D. .2* 3/0.2"A*3. (*3./(*1 9

&(.2 4!& 37*-!*3 /, (*;!>!/03 3/4>3 (04> ./ .2* &--/67&4!6*4. /, .2* ,;0.* A!.2 -2**(,0; ;!=*;5 6/=*6*4.3 <5 -2/!(3 -, 6&!1*43

&(.2?4!03 (**D >(&66&(!&4 &41 7/*. /, !-3*& !4 !.254!& A2/ A&3 <(/0>2. -&7.!=* ./ /6* 10(!4> .2* A&(' A!.2 !.2(;1&.>3 ,.*(' 2!3 (*;*&3* 2* ;!=*1 .2*(* .!;; .2* .!6* /, !<*(!03 *3F .**6*1 &3 &3-2/;&(' &41 7/*. *37*-!&;;5 &3 & A(!.*(' /, *;*>!&- 7/*63 * A&3 &-F :0&!4.*1 A!.2 *(>!; A2/6 2* .&0>2. (**D &41 /4* /, 2!3 7/*63 !3 3&!1 ./ 2&=* <**4 .2* 6/1*;, /(' .2* <0. 2* A&3 6/(* -;/3*;5 -/44*-.*1 A!.2 .2* *;*>!&- /(4*;!03 &;;03 /(' &;;03

.2* <*&0.5 /, !.3 *0*-0.!/4 &41 .2* 37;*4F 1/0(' /, !.3 &(.!3.!- &1/(46*4. f 2*(* A&3 &4 *&(;!*(' .*67;* /, .2*4*B!66*1!&.*;5 ./ .2* 3/0.2 /, .2* (*-2.2*06 83** 7;&4 /, ( ) &41 .2* ,/041&.!/43 /, & 4*A .*67;* A*(* ;&!1 &,.*(' .2* *(3!&4 &(' 7(/<&<;5 !4 .2* .!6* /, !6/4 2!3 .*67;* A&3 4*=*(' -/67;*.*1 /4 .2* 3&6* 3!.* .2*(* A&3 <0!;. & .*67;* /, ;*33 ;*4>.2 <0.>(*&.*(' <(*&1.2 A2!-2 !3 030&;;5 -&;;*1 .2* , (" " [.A&3 <0!;. &. .2* -/6F 6&41 /, *(!-;*3 <5 .2* &(-2!.*-.3 -.!403 &41 &;;!-(&.*3 . .//D &</0. ,!=* 5*&(3 !4 <0!;1!4> &41 A&3 ,!4!32*1 !4 C R ' (' 8,!> $9 .3 ,0(.2*(' &1/(46*4.A!.2 3-0;7" .4!; ' !4 .!;! !,=. !,& .(!r ! (5!/,(!(.&&

and frieze was completed under the direction of Phīdias, who himself took part in the work. The temple, built wholly of Pentelic marble, is 65 feet high. The *stylobate*, or platform, on which the columns stand (fig. 2, *C*), is 228 feet in length, and 101 feet in breadth [$=225 \times 100$ in Attic feet, giving 9 : 4 as the ratio of length to breadth]. Under the stylobate is the

(2) *SECTION OF NORTH-EAST PORTION OF THE PARTHENON,

shewing *A*, substructure; *B B B*, steps of *crepidoma*; *C*, stylobate; *D*, tympanum of eastern pediment; *E*, coffered ceiling; *F*, frieze of the *cella*; *G*, metopes and triglyphs; *H* is part of the range of Parnes (*Wiener Vorlegeblätter*).

crēpīdōma, or basis proper, formed of three steps (fig. 2, *B B B*) resting on a massive substructure, 250 feet long and 105 feet broad, and founded on the rock at the highest part of the plateau of the Acropolis (fig. 2, *C*). The temple is peripteral, its walls being entirely surrounded by a colonnade of forty-six Doric columns, about 35 feet high, eight at each end, and fifteen on each side. The architrave from the first was adorned with 92 metopes sculptured in high relief (*see*, for the position of the metopes, fig. 2, *G*). Shields and votive inscriptions were subsequently placed there by Alexander the Great, in 338 B.C. [Plut., *Alex.* 16]. The subjects were: on the E. the battle of the gods and giants; on the S., that of the Centaurs and Lăpĭthæ (fig. 3); on the W., the victory of the Athenians over the Amazons; and on the N., the destruction of Troy. The sculptures of the eastern pediment (*D*) represented the birth of the goddess, those of the western the strife of Athēnē with Pŏseidōn for the possession of Attica. These pediments are 93

feet long, and 11 feet 4 inches high. The *cella*, or temple proper, is 194 feet long, and 69½ feet wide, with six columns at each

(3) * A METOPE FROM SOUTH OF THE PARTHENON. (British Museum.)

end, 33 feet in height. Opposite the outermost columns at each end are *antæ*, formed by the prolongation of the side walls of the *cella* (*see* plan of ACROPOLIS). Along the top of the outer wall of the *cella* ran a continuous frieze, 524 feet in length, with representations of the Panathenaic procession

goddess, wrought in gold and ivory, the masterpiece of Phīdias (*cp.* ATHENE, near the end). The western chamber of the *cella* was fronted by a portico, and was called by the special name of the *Parthenon*. [Within this smaller chamber were kept vessels for use in the sacred processions, with various small articles of gold or silver. Modern writers have hitherto generally identified this small chamber with the *ŏpisthŏdŏmŏs* (lit. back-chamber), which was used as the treasury, or State bank, of Athens; but it is held by Dörpfeld that this term should be confined to the corresponding chamber of the early temple south of the Erechtheum.]

In the Middle Ages the temple was converted into a church, dedicated to the Virgin Mary, and then into a mosque, and remained in good preservation till 1687. In that year, during the siege of Athens by the Venetians, the building was blown up by the explosion of a powder magazine that the Turks had stored in it, and, with the exception of the two pediments, was almost completely destroyed. Most of the sculptures preserved from the pediments and metopes, and from the frieze of the temple chamber, are now among the Elgin Marbles in the British Museum.

(4) FROM THE NORTH FRIEZE OF THE PARTHENON. (British Museum; slabs XXXV, XXXVI.)

carved in very low relief (fig. 2, *F*, and figs. 4 and 5). At the east end of the *cella*, the *prŏnāŏs*, or portico, leads into the eastern chamber, which was 100 Greek feet in length, and was therefore called the *hĕcătŏmpĕdŏs*. It was divided longitudinally into three parts by two rows of nine columns each, and above these was a second row of columns forming an upper story. The central space was open to the sky (hypæthral). At its western end, under a protecting canopy, stood the statue of the

Parthĕnŏpæus. According to the older tradition, the beautiful son of Tălăus of Argos, and the brother of Adrastus; according to others, the son of Atălanta and Mĕlănĭōn. He was one of the *Seven against Thebes*, and was killed on the Theban wall during the storming of the city; the piece of rock that laid him low was hurled by Pĕrĭclўmĕnus. His son by the Nymph Clўmĕnē is Prŏmăchus, one of the Epĭgŏni.

Pāsĭphāē. Daughter of Hēliŏs and Persēĭs, sister of Aëtēs and Circē, wife of

Mīnōs. She was enamoured of the white bull presented by Poseidon to Minos (*q.v.*), and thereby became the mother of the monstrous Minotaur. (*See* MINOTAURUS.)

Pāsītĕlēs. A Greek artist of the 1st century B.C., a native of S. Italy. He was actively engaged at Rome on important works in marble, ivory, silver, and bronze, and was also an author. He originated a new school, which was not immediately connected with any of the existing tendencies of art, but was founded on a careful study of nature and the masterpieces of earlier sculptors. It aimed above all things at correctness of form, combined with elegance of representation and a mastery of *technique*. [Pasiteles chased in silver a representation of the infant Roscius (Cic., *De Div.* i 79), and executed an ivory statue of Jupiter for the temple dedicated by Metellus (Pliny, *N. H.* xxxvi 40). According to his contemporary Varro, he never executed any work without modelling it first (*ib.* xxxv 156). Among his pupils was Stĕphănus, who in his turn was the master of Mĕnĕlāus.] (*See* SCULPTURE.)

Passŭs. The pace, or double step, a Roman measure of length = 5 Roman feet (*pes*) or 1·479 metres [= 4 English feet 10¼ inches]. 1,000 *passūs* formed a Roman mile, 1,478·70 metres [or 1,616 yards, 2 feet, 2 inches, or about 143 yards less than an English mile. The *passus* is sometimes estimated as 1·48 metre; 1,000 *passus* being then 1,480 metres or 1,618 yards, *i.e.* 142 yards less than an English mile].

Pătĕr Fămĭlĭās. The master of a house among the Romans (*see* FAMILIA). *Pater patrātus*, the spokesman of the *fētiāles* (*q.v.*). *Păter mātūtīnus*, a special name of Janus (*q.v.*).

Pătĕrā. The broad, flat dish or saucer used by the Romans for drinking and for offering libations. (*See* VESSELS.)

Pătrĭă Pŏtestas. *See* FAMILIA.

Patricians (*patrĭcĭī*, lit. the relatives of the *patrēs*, or heads of families of the old tribes. (*See* GENS.) In the oldest times of Rome, the actual citizens who constituted the *pŏpŭlus Rōmānus*. They were divided into three tribes,—*Ramnēs*, *Tĭtĭēs*, and *Lŭcĕrēs*, each consisting of ten *cūriæ*. (*See* CURIA.) The union of these latter formed the national assembly, the *cŏmĭtĭă cūrĭātă*. (*See* COMITIA, 3.) Besides

(5) * FROM THE EAST FRIEZE OF THE PARTHENON.
(Acropolis Museum, Athens; slab vi.)

these there were originally only *clĭentēs*, settlers enjoying no legal rights, with the citizens for their protectors (or *patrōnī*). Afterwards, when a new element of the population, endowed with partial citizenship, called the *plebs* (*q.v.*), sprang up from the settlement of subjugated Latin tribes, the *patricii* stood in contrast to them as old citizens possessing full rights. Later, the plebeians received a fuller citizenship through the centurial constitution framed by Servius Tullius (*see* CENTURIA), while they gained at the same time the right of voting in the *comitia centŭrĭātă*, composed of patricians and plebeians, together with the obligation of serving in the field and paying taxes, hitherto obligatory on the patricians alone. In contrast to the plebeians, the patricians thus formed a hereditary aris-

,/-(&-5 A!.2 .2 *0-;03!=* (!>2. ./ 2/;1 70<;!- /,,!-*3 A2*.2*(-!=!;(/((*;!>!/03 /.2!4> 32/(. ; &1*-!3!/4 <5 .2* -/0;1 *!.2*((*6/=* &45 /4* ,(/6 .2* 7&.(!-!&4 </15 /(8/4 (&(* /--&3!/439 *4(/;& 7;*<*!&4 &6/4> .2* 7&.(!-!&43 2*-/4.(&-.!/4 /,6&((!&>*3 <*.A**4 7&.(!F -!&43 &41 7;*<*!&43 A&3 4/.&;;/A*1 .!;;CCV =!/;*4.3.(0>>;*&(/3* <*.A**4 .2* .A/ 7&(.!*3 &,.*(.2* *3.&<;!32 6*4./ .2* *70<;!-!4 V$N /4 .2* 30<K*-./ .2* &16!33!/4 /, .2* 7;*<*!&43 ./ .&.* /,,!-*3 2!3 3.(0>>;*;&3.*1 .!;; NN (&41 .2* 7&.(!-!&43 A*(*3.*7 <5 3.*7 ,/(-*1 ./ >!=* 07 .2*!(*0-;03!=* (!>2. ./ /4* /,,!-* &,.*(&4/.2*(!(3. /,&;; .2*5 2&1 ./ >!=* 07 .2* :03*3./(32!7 8CNT9 .2*4 .2* -/430;&.* 8 ?U9 .2* 1!-.&./((!!!7 8 V?9 .2* -*43/(32!7 8 V$9 .2* 7(3*./(32!7 8 RK &41 ,!4&;;5 .2* 6/3.! 6 7/(.&4. 7(!*3.;5 /,,!-*3 .2* 7/4.!,!-&.* &41 .2* &0>0(32!7 8 NN9 4;5 7/;!.!-&;;5 04! 6 7/(.&4. /,,!-*3 A*(* ;*,. (*3*(=*1 ,/(.2*6 .2* .*46/(&; /,,!-* /, " -&41 .2* 7(!*3.;5 /,,!-*3 /, -&41 .2* .2(** """, 2* 7/;!.!-&;! 6 7/(.&4-* A2!-2 .2* 7&.(!F -!&4 7/33*33*1 .2(/0>2 !.3 (!>2. ./ -/4,!(6 .2* 1*-!3!/43 /, .2* A&3 ;/3.! 4 @R? 2* !4 A2!-2 .2* 2&1 .2* 7(*F 7/41*(&4-* .203 <*-&6 * .2* 6/3.! 6 7/(.&4. /(>&4 /, .2* 1*6/-(&-5 4 &(!3./-(&-5 /, 2/;1*(3 /, 70<;!-/,,!-*3 A&3 .203 ,/(6*1 -/43!3.!4> /, .2* 7&.(!-!&43 ./>*.2*(A!.2 .2* 6/(* !6 7/(.&4. 7;*<*!&4 ,&6!;!*3 2* 6*6F <*(3 /, 30-2 ,&6!;!*3 A2*.2*(7&.(!-!&4 /(7;*<*!&4 A*(* -&;;*1 " B 2* 406F <*(/, 7&.(!-!&4 ,&6!;!*3 1A!41;*1 >(*&.;5 /A!4>./ .2* -!=!; A&(3 8/4 .2*!(406<*(./A&(13 .2* *41 /, .2* *70<;!- @ &33&(&41 0>03.03 !4-(*&3*1 .2*6 <5 !4.(/10-!4> 7;*<*!&4 ,&6!2*3 &41 30<3*:0*4. *67*(/(3 >&=* .2* 7&.(!-!&.* &3 &1!3.!4-./!4 41*(/43.&4.!4* .2* (*&. &1!3.!4-./!4 <*-&6* & 7*(3/4&; .!.;* A2!-2 -/4,*((*1 &(&4D !6 6*1!&.*;5 <*;/A .2* -/430;3 2* *0.*(4&; 1!3.!4-.!=* 6&(D3 /, &7&.(!-!&4 A*(* .2* " &) (&41 &7*-0;!&(3/(./,32/* & " ( ) &1/(4*1 A!.2 &4!=/(5 -(*3-*4.& " &.(/-;03 W, &;6/3. &;A&53 !4 ' &.(/-;!!3 /4-* /4;5 !4 =/-&.!=* & O!O @RU9 /4 /, ,!4-*.!03 &41 .2>4*;* .2*</3/6 ,(!*41/, -2!;;*3 *,*;; <*,/(* (/5 <5 .2* 2&41/, *-./(& (&.(/403 2* /6&4 .*(6 ,/(.2* 7(/F .*-./(/, & 3!4>;* -;!*4. /(/, & A2/;* -/6604!.5 83** " !.2* *6&4-!7&./(!4 (*;&.!/4 ./ 2!3 ,(**16&4" &41 .2* K01!-!&; (*7(*3*4.&.!=* /, &--03*(/(&--03*1 /(.2* 1!3.!4-.!/4 <*.A**4 " &41 2 .2*;..*(& ;03 8$9 . /6&4 K0(!3./, 2!>2 (*70.* !4 .2* <*>!44!4> /, .2* (1 -*4.0(5 -/4.*67/(&(5 A!.2 &7!4!&4 &41 ;7!&4 !.2 .2* ,/(6*(2* A&3 ;*>&; &33*33/(./ .2* *67*(/(*7.!6!03 =*(03 !.2 .2* ;&..*(2* A&3 2 041*(;*0&41*(*=*(03 &,.*(2* 2&1 <**4 3*4.!4./ *0!;* <5 *;; >R <&;03 *A&3 6/3.7(/10-.!=* &3 &;*>&; &0.2/(<0.!4;!.*(&(5 3D!;; &41 ,!4!32 3.//1 ,&(<*;/A 2!3 .A/ -/4.*67/(&(!*3 2* *0.(&-.3 ,(/6 2!3 406*(/03 6/4/>(&723 /(6/(* -/67(*2*43!=* A/(D3 ,/(6 & 3!0.2 7&(./, .2* H !>*3. I *3!1*3 .2*3* *OF .(&-.3 2!3 " " & =*(5 7/70;&(-/6F 7*41!06 /, 041!370.*1 7(!4-!7;*3 /4 .2* 6/3.,(*:0*4. 7/!4.3 /, ;&A 2&3 <**4 7(*F 3*(=*1 !4 & 32/(.*4*1 ,/(6 8@9 > .C9 &43J4!&3 2* (**D .(&=*;;*(&41 >*/>(&72*(&4&.!=* /, 51!& * *07;/(*1 (**-* &-*1/4!& 3!& &41 ,(!-& &41 .2*4 !4 .2* 3*-/41 2&;, /, .2* @41 -*4.0(5 3*..;*1 !4 /6* A2*(* 2* -/67/3*1 &, 1 /(.!4*(&(5 /, (**-* !4 .*4 </!/<3 //D !4-;01*3 ..!-& &41 *>&(,3" !! /(!4.2 A!.2 !-5/4 2;!.!3 (>/;!3 >!4& &41 .2* /.2*(4*!>2</0(F !4> !3;&413" !!! ,.-/4!& != *33*4!& =! ;!3 &41 ;56 7!& !! 2/-!3 &41 /-(3 (-&1!& !0 /*/.!&W 0 2/-!3 &41 /-(3 2* A/(D !3 ,/041*1 /4 4/.*3 .&D*4 /4 .2* 37/. ,(/6 2!3 /A4 /<3*(=&.!/4 &41 !4F :0!(5 ,(/6 .2* 4&.!=*3 /, .2* -/04.(5 /4 .2* 30<K*-./ .2* (*;!>!/03 -0;.3 &41 .2* 6/406*4.3 /, &(.! &41 &(-2!.*-.0(* /F >*.2*(A!.2 .2*3* .2*(* &(* ./7/>(&72!-&; &41 2!3./(!-&;4/.!-*3 !4 A/(D!4> 07 A2!-2 &03&4!&3 .//D !4./ -/43!1*(&.!/4 .2* &-F -/04.3 /, .2*(&0.2/(3 7/*.3 &3 A*;; &3 7(/3* A(!.*(3 !.!3!5*./ /, !4*3.!6&<;* =&;0* ,/(/0(D4/A;*1>* /, &4-!*4. (**-* *37*F -!&;;5 A!.2 (*>&(1 ./ !.3 65.2/;/>5 &41 !.3 (*;!>!/03 -0;.3 <0.&</=* &;; ,/(.2* 2!3./(5 /, (**D &(. 2* -/67/3!.!/4 /, 2!3 A/(D 8*37*-!&;;5 !4 .2* *&(;!*(</!D39 32/A3 ;!..;* 3D!;; !4 7;&4 *0*-0.!/4 /(3.5;* &03!&3 (**D 7&!4.*(&707!; /, &672;03 &41 &, /;;/A*(/, .2* !-5/4!&4 3-2//; *;!=*1&</0. ?N (&. !-5/4 &41 !4=*4.*1 .2* &(. /, 7&!4.!4> =&0;.*1 -*!;!4>3 &41 &;3/ /, ,/(32/(.*4!4>" 2*

<(/0>2.' *4-&03.!-' 7&!4.!4>' ./' 7*(,*-.!/4'
*' 7&!4.*1' -2!*,;5' -2!;2!1(*4' &41' ,;/A*(3'
4*' /,' 2!3' 6/3.' ,&6/03' 7!-.0(*3' A&3' .2*'
;/A*(' !(;'& (" '(*7(*3*4.!4>'
.K!*' ,;/A*(">!(;' ;B- (&' /,' A2/6' 2*' A&3'
*4&6/0(*1' !4' 2!3' 5/0.2' f ;!45' > ' '
]]] '$@ "$@Ug
f &4314' ' (**D' 7&!4.*('A2/6' (!3./.;*'
-/4.(&3.3'A!.2' ?;5>4?.03'!4'.*(63'167;5!4>'
.2&.' .2*',/(6*('A&3'&' -&(!-&.0(!3.'&, D'
@' `' @9' ;3*A2*(*' (!3./.;*' 3&53' .2&.'
5/04>' 7*77;*' 32/0;1' 4/.' ;//D' &.' .2*'
7!-.0(*3'/,' &03/4'<0.'(&.2*('&.'.2/3*'/,'
/;5>4/. 3' /(' /,' &45' /.2*(' H'*.2!-&;'I'
&(.!3.'&, '=!!!' J'`U9' *' !3'3/6*F
.!6*3' !1*4.!,!*1'A!.2'.2*' &03/4'A2/'!3'
6*4.!/4*1'A!.2'-/4.*67.'<5' (!3./72&4*3'
& ('RVC'+('TCR'&41', '?N@9g
f ' ' g' %
D=/(' '
&O' U2*' /6&4' >/11*33' /,' 7*&-*'
&$ '
1-!;;&.43' 2*' /6&4' .*(6',/('6!3"
&77!A(!&.!/4','70<;!-'7(/7*(.5'A2*.2*('
<5'/,,!-!&;3' . ' 6'.2*'1*;!=*(5',' </!.59'
/(' <5' 7(!=&.*' 7*(3/43' 0-2' /,,*4-*3'
A2!-2' 3*;1/6' /--0((*1' !4' .2*' 6/(*'
&4-!*4.'.!6*3'/,'.2*' *70<;!-'A*(*'.2*4'
K01>*1' <5' .2*' 4&.!/4&;' .(!<04&;' 4'
;&.*('.!6*3'.2*5'603.'2&=*'<*-/6*'6/(*'
,(*:0*4.' 3!4-*' =&(!/03';&A3'A*(*'!330*1'
&>&!43.' .2*6' &41' &' 37*-!&;' -/0(.' /,'
K03.!-*' . ' S0! !/g' A&3' &77/!4.*1' ./'
.(5' .2*6' *3!1*3' .2*' 7&56*4.' /,'
-/67*43&.!/4' .2*' -/41*64B' 7*(3/4'
30,,*(*1'1!3>(&-*' &41'<&4!326*4.' 6
" ' (' ' $' ' #) & '&41'!4'
.2*'.!6*'/,'.2*' 67!(*'.(&437/(.&.!/4
-,! 46' 2*' /6&43' -/43!1*(*1'
.2*'6&3.*('/,'.2*'2/03*' ' # 1'
.2*';&A,0;' /A4*('/,' &;' .2*' *&(4!4>3'/,'
.2*'6*6<*(3'/,'.2*',&6!;5'041*('2!3'-/4F
./;' A2*.2*('</41'/(',(**' ' & A '
2&.*=*('306' /,' 6/4*5' 2*' >&=*' ./' &'
>(/A4'07'3/4'/(' ./' &'3;&=*',/(' 2!3' /A4'
03*'A&3'-&;;*1' ' " # '/,'.2*';&..*('
2!3'>!,.' -/0;1'<*'(*=/D*1'&.'7;*&30(*'&41'
-/0;1'4/.'<*'1!37/3*1'/,'<5'A!;;' 0>03.03'
,!(3.'>(&4.*1'.2!3'(!>2.'./' 3/;1!*(3'!4'.2*'
-&3*' /,' 7(/7*(.5'A/4' !4' A&(' . " # '
" 1$' &41' /43.&4.!4*' *0.*41*1'!.'./'
.2&.'>&!4*1'!4'&' -!=!;' /,,!-*' . " # '
(' " 1
1&(!!' 2/3*' 6*6<*(3'/,'.2*' /6&4'
4&.'.(' 1'A2/'2&1'/--07!*1'4/'/,,!-*'/,'
.&.*'&41'2*4-*'./!D'&;/A*('(&4D' 2*5'
6!>2.'/4;5'32&(*'!4'.2*'=/.!4>'<0.'1!1'4/.'
4K/5'.2' (!>2./,' *07(*33!4>'!41!=!10&;'
/7!4!/43
1!;3' '$ & '")
>D3;!3' 2' A!4>*1"' ' ' (' '
A " " '4&6*1' *>&303' &--/(1!4>'./'
3!/1'W ! 1'@R$g' <-&03*' 2*' A&3' </6'
&.'.2*'37(!4>3'8 1 '/,' -*&4' *>/..*4'
<5' 3*!1/4'2*'37(&4>',/(.2'A!.2' 2(53& ('
,(/6' .2*' <;**1!4>' </15' /,' 2!3' 6/.2*('
103&' A2*4' 2*('2*&1' A&3' -0.' /,,' <5'
*(3*03' W '$(5 (',!>'$g' 4' 2!3'
<!(.2' 2*'3/&(*1'!4./' .2*' &!('&41' .2*' 37/.

' ' + '
8 /(4*' 7&1&' &;&-*9

A2*(*' 2*',!(3.'(*3.*1' A&3' .2*'&-(/7/;!3' /,'
/(!4.2' 2!;*' *>&303' 7&03*1' .2*(*' ./'
1(!4D'&.'.2*',/04.&!4'/,' *!(*4*' *;;*(72 4'
.(1' &0>2.'&41'.&6*1'2!6'<5'.2*',&=/0('
/,' .2*43'&41' /3*!1/4' .'A&3'/4' *>&303'
.2&.' *;;*(/72/(!'A&3' 6/04.*1' A2*4' 7*(F
,/(6!4>' 2!3' 2*(/!-' *07;/!.3' !4-;01!4>' 2!3'
-/4:0*3.' /,' .2*' 2!63*(&' ,.*(A&(13'
A2*4' *>&303' 2&1' .2(/A4' 2!3' (!16' .2*'
3.**1' ,;*A' 07A&(1' ./' .2*' !66/(.&;3'./'
1A*;;' !4' .2*' 7&;&-*' /,' L*03' &41' ./' <(!4>'
2!6' 2!3' .2041*(' &41' ;!>2.4!4>' 5';&.*('
A(!.*(3' *>&303' !3' 1*3-(!<*1' &3' .2*' 3.**1

C?? B '"""""' .(

/,' /3' /(' /,'.2*' 03*3' 4'.2*'37/.'A2*(*' 2*' 3.(0-D' ;!-/4' A!.2' 2!3' 2//,' .2*(*' >032*1',/(.2'.2*' !437!(!4'>' ,/04.&!4'/,' .2*' 03*3'D4/A4'&3' / " '8H'.2*',/04.&!4'/,' .2*' 3.**1'I9' 2*'37(!4>'/,' " ' 4*&(' (/*0*4' &41'.2&.' /,' *!(*4*' /4' .2*' -(/-/(!4.203' A*(*' 3&!1' ./' 2&=*' 2&1' &' 3!6!;&(' /(!>!4' 4'.2*'-/!43'/,' /(!4.2'.2*' 6/3.'-/66/4' .57*',(/6'.2*'*&(;!*3.'.!6*3' !3'.2*' A!4>*1' *>&303' 2*' -0((*4.'(*7(*F 3*4.&.!/4',' *>&303'&3' .2*' 7/*.3'3.**1'!3' &' 6/1*(4'!4=*4.!/4

*!(&!-03' ' 7 (

*!(*4*' &6 ' 2*' 37(!4>'3.(0-D'/0.' <5'.2*'A!4>*1'3.**1' *> 303' /4'.2*'-!.&1*;' /,' /(!4.2' /(' &4/.2*(' .(&1!.!/4' /,' !.3' /(!>!4' '$ *)

!(!.2/..3' 8 &.' A ' /4'/,' !&' <5'2(' 203<&41' 0!/4' /(' 8&--/(1!4>'./' &4/.2*(' &--/04.9' <5'L*03' 7(!4-*' /,' .2*' &7!.2&*' &41',(!*41'/,' 2*3*03' 2*4' 2*' A&3' -*;*<(&.!4>' /4' /04.' *;!<4' 2!3' 6&((!&>*' A!.2' !77/1&6!&' 1&0>2.*(' /,' .(&0' /4*' /,' .2*' &7!.2**' .2*(*' &(/3*' .2*' -*;*<(&.*1' <&..;*' <*.A**4'.2*' &7!.2&*' &41' .2*' *4.&0(3' A2!-2' *41*1' !4' .2*' 1*F ,*&.' /,' .2*' ;&..*(' 2*' *4.&0(3' &41' .2*' 6/3.' 1!3.!4>0!32*1' (**D' 2*(/*3' 2&1' <**4' !4=!.*1' ./' .2*' A*11!4>'' <0.' /4*' /,' .2*' ,/(6*(' 0(5.;/4' !4' 1(04D*4' </;14*33' &.F .*67.*1' ./' -&((5',,' .2*'<(!1*' &41',/;;/AF !4>' 2!3' *0&67;*' .2*' /.2*(' *4.&6 ' ,*;;' 07/4' .2*' A/6*4' /,' .2*' &7!.2&*' !4-*' 2*3*03' &41' /4*' /,' .2*' &7!.2&*' &*4*03' & ' (*3-0*1'.2*'<(!1*' *!(!.2/03' &33!3.*1' .2*',/(6*(' !4'.2*' &<10-.!/4'/,' *;*4' -F -/67&4!*1'<5' 2*3*03' *!(!.2/03'1*3-*41*1' !4./' .2*' A/(;1'<*;/A' !4' /(1*(' ./' -&((5',,' *(3>72/4*' &41' A&3' -/67*;;*1' ./' 7!4*' .2*(*' !4' *=*(;&3.!4>' -2&!43' &3' &' 704!32F 6*4.' A2!;*' 2*3*03' & ' A&3' (*;*&3*1' <5' *(&-;*3' *!(!.2/03' 3/4' /;57/*. 3' 6&(-2*1'./' (/5'A!.2' >/4.*03'.2*'>(&41F 3/4' /,' &*4*03' &41' &,.*(' .2*' ,&;;' /,' (/5' '!3' 3&!1' ./' 2&=*' ,/041*1' A!.2' 2!6' .2*' -!.5' /,' 37*4103' !4' &6725;!&

*!3&41(<3' 8 &.' , " ' ' (**D' *7!-' 7/*.' /,' J6!(03' !4' 2/1*3' &</0.' ?CN' 4 0' *' A(/.*' & ' !4' .A/' </!D3' A2!-2' !3' 406<*(*1' &6/4>'.2*'<*..*(' -;&33',' *7!-' 7/*63' *' A&3' .2*',!(3.'./'B *:0!7' *(-0;*3"A!.2'.2*'-;0<'&41'.2*';!/43'2!1*' &41' 2*'7(/<&<;5'&;3/',!0*1'.2*'406<*(' /,' 2!3';&</0(3'&.'.A*;=*' 4;5'04!4.*(*3.F !4>',(&>6*4.3'(*6&!4

*!.21' 4' (**D'65.2/;/>5'.2*'7*(3/4!F ,!-&.!/4',' 7*(30&3!/4' 'D*' (/3' &41'.2*' (&-*3'A!.2'A2/6' *3!/1'6*4.!/43'2*(' # M ' " '5 : 'U g'32*'030&;;5'&77*&(3 !4'.2*'.(&!4',' 72(<1!.*' 2*'A&3'!41**1' -/43!1*(*1'.2*'1&0>2.*(',' .2*'>/11*33'&41' A&3' 2/4/0(*1' ./>*.2*(' A!.2' 2*(' &3' !4' .2*43' 2*' A&3' &;3/' -/44*-.*1' A!.2' *(6*3'&3'.2*'>/1',' *;/:0*4-*

?$*!1 113' (!*3.*33*3'&.' /1/4&'& *;*03' /4' ;&-03' &41' /,' 41*!3' &41'<(/.2*(',' *;&6 4' *'A&3'<&4!32*1' A!.2'2!3'<(/.2*(' /4'&--/04.',' .2*'60(1*(' /,' 2!3'3.*7"<(/.2*(' 2/-03'A2/6'2*'2&1' 3;&!4'A!.2'.2*' '/0.' /,' *4=5'&.' 2!3' 3.(*4>.2'&41'3D!;;' !3',&.2*(' <&4!32*1' 2!6',(/6'K >!4&'<0.' 2*'A&3'70(!,!*1',(/6' 2!3'60(1*(' &01'2/37!.&<;5'(*-*!=*1'<5'213' 04-;*' 0(5.;/4'D!4>'/,' 2*33&;!&4' 2.2!&' 0(5.!/4'>&=*'./' *;*03'2!3'1&0>2.*(' 4.!F >/4*'6/.2*(',' .2*'<*&0.!,0;' /;51/(&'&41' /4*".2!(1',' 2!3';&41'&3'&'1/A(5' *;*03' &--/67&4!*1' 0(5.!/4' !4' .2*' &;51/4!&4' 04.' &41' D!;;*1' 2!6' 04&A&(*3' A!.2' &' K&=*;!4' 2*(*07/4'2*',;*1',(/6' 2.2!&'./' ;/;-03' A2*(*' /4-*' &>&!4' D!4>' -&3.03' -;*&43*1'2!6',(/6'.2*' >0!;.' /,' <;//132*1' *-&03*' 2*' (*K*-.*1' .2*' 7(/7/3&;3'/,' 3.5"' 1&6*!&' .2* A!,*'/,' -&3.03'32*' 3;&41*(*1' 2!6'./' 2!3' A!,*' &41' ./' 2*(' 203<&41' .*;;!4>' .2*' ,/(6*(' .2&.' *;*03' A&3' A//!4>' 2*(' 1&0>2.*(' .*(<7*' &41' .2*' ;&..*(' .2&.' 2*' A!32*1' ./' 7*(30&1*' 2*(' ./' !4,!1*;!.5' 4.!F >/4*' D!;;*1' 2*(3*;,' 7(' 3/(((/A' <0.' -&3.03' 7;&44*1' (*=*4>*' 2*4' *;*03' A*&(!*1' <5'.2*' -2&3*' 2&1',&;;*4' &3;**7' /4' *;!/4' -&3.03' ;*,.' 2!6' &;/4*' &,.*(' 2!1!4>' !4' & 104>2!;;' 2!3'!((*3!3.!<;*' 3A/(1'.2*' A/(D'/,' *72&*3.03'&41'.2*'>!,'/,' .2*'>/13' 2*4' *;*03'&A/D*' &41'3/0>2.'2!3'3A/(1'2*' A&3' &..&-D*1'<5'.2*' *4.&0(3'&41'/4;5'1*;!=*(*1' <5'.2*'7(*3*4-*'&6/4>'.2*6'/,' 2!(/4'2!3' 6&.*(4&;'>(&41,&.2*(' !.2' 2!(/43'2*;7' 2*' (*-/=*(*1'2!3'3A/(1'3;*A' -&3.03'&41' 2!3'A!,*'&41'./!D'7/33*33!/4'/,' .2*' .2(/4*' /,';/;-03' 2*'>/13'1*-(**1'2!6'.2*'3*&' >/11*33' 2*.!3'&' &3'2!3'A!,*' !.2' 2!(/43'2*;7'2*' /=*(-&6*'2*(' (*3!3.&4-*' !4'&'>(/../<5'.2*'3*&';.2/0>2'32*'*41*&F =/0(*1'./' *3-&7*' <5' -2&4>!4>' !4./',!(*' A&.*(' <*&3.'/(',32' 2*' 6&((!&>*' A&3' -*;*<(&.*1' !4' 2!(/43' &=*' /4'.2*' 3066!./' ;' *;;!K4'&41'.2*' !66/(.&;3' &77*&(*1'&41' >&=*' *;*03'7(*3*4.3!' 3*!1/4'.2*'0415!4>' 3.**13' &;;03'&41'] &4.203'&41'&;;'.2*'>/13' .2*' A*&7/43' A!.2' A2!-2' -2!;;*3' &,.*(F A&(13' ,/0>2.'<*,/(*' (/5' 2!(/4' 7(*F 3*4.*1'2!6'A!.2'&' ;&4-*' 6&1*' /,' &4' &32' .(**' /4' /04.' *;!/4' 7/;;/' &41' .2*' 03*3'3&4>'/,' .2*' 1**13' /,' *;*03'&41' /,' 2!3' 04</(4'3/4' 0.' E(;3' /(' .(!,*' &;3/' &77*&(*1'04!4=!.*1'&41'.2(*A'&6/4>'.2*' >/11*33*3'&' >/;1*4' &77;*' A!.2' .2*' !43-(!7"

G.!/4 A (A .203 >!=!4> .2 ,!(3. -&03 ,/(.2 (/K&4 &(# 2 4 .2!3 A&(.2 /4;5 /,,37(!4> /, .2!3 6&((!&> .2 2*(/ -2!;;*3 !3 3&!1 ./ 2&= ,/041 &4 "04.!6*;5 *41 10(!4> 2!3 ,&.2*(3 ;!,*.!6* --/(1!4> ./ &;&.*(.(&1!.!/4 04D4/A4 ./ /6*(2*.!3 ,/(3//D 2*(203<&41 <*-&03 2!3 7(*3*4-2!41*(*1 2*(,(/6 6&D!4> 2*(3/4 !6 6/(.&;

;;&3 /4 /, 13*!1 4 &41 /, B/ A2/A&3 &,.*(A&(13 .2 A!,* /, (*.2*03 *A&3 .2 <(/.2*(/, *;*03 2&;,"<(/.2*(G/,)3?4 2*(*3 &41 65.2&/4 ,&.2*(/, -&3.03 &41 ;-*3.!3 * 1*7(!=*1 ! 3/4 %/, .2 1/6!4!/4 /, ;/;-03 &41 3*4. ,,;3/43 3/4 &3/4 ./ /;-2!3 ./ ,*.-2 .2 >/;1*4 ,;**-* * 1!1 3/ <*-&03 .2 5/0.2 4/A ,0;;5 >(/A4 A&3 -;&!6!4> 2!3 ,&.2*(3 .2(/4* 4 &3/43 &<3*4-* *;!&3 D!;;*1 L 3/4 &41 1(/=* 2!3 A!, ./ 30!-!1 4 (*=*4>* A2*4 &3/4 (*.0(4*1 2!3 A!, *1*& 7*(30&1*1 .2 1&0>2.*(3 /, *;!&3 ./ -0. 2!6 ./ 7!*-*3 &41 3**.2 2!6 !4 & G-&;1(/4 041*(.2 7(*.*0. /, (*3./(!4> 2!6 ./ 5/0.2 !3 3/4 -&3.03 !43.!.0.*1 !4 2!3 2/4/0(,04*(&; >&6*3 A2!-2 A*(>(*&.;5 -*;*<(&.*1 <5 7/*.3 &41 &(.!3.3

! 7!& &0>2.(/, 25*3.*3 6/.2*(G/, >!3.203 <5 2*(/A4 ,&.2*(# 4 &41

>;/73 /4 /, .2 51!&4 /(2(5>!&4 D!4>.&4.&;03 &41 !/4 1&0>2.*(/, .;&3 2*4 2 A&3 &-2!;1 2!3 ,&.2*(3;*A 2!6 %0.2!6 ./ 7!*-*3 &41 3**.2*1 2!6 &41 3*. 2!6 &3 ,//1 <*,/(.2 >/13 2 >/13 1!1 4/. ./0-2 .2 2/((!<;* 6*&;" /4;5 *6*.*(&<3/(<*1 !4 >(!*, /(2*(3./;*4 1&0>2.*(&.* /4 32/0;1*(5 .2 -/6F 6&41 /, L*03 *(6*3 (*7;&-*1 .2 7!*-*3 !4 .2 -&;1(/4 &41 ;/.23 1(*A .2 </5 ,(/6 !. !4 (*4*A*1 <*& .5 A2!;* *6*F .*((*7;&-*1 .2 6!33!4> 32/0;1*(<5 /4 6&1 /, !=/(5 *4-* !. A&3 .2&. 2!3 "1*3-*41&4.3 .2 *; 7;16 </(/4 /4 '32/0;1*(&6&(D /, 1&QQ;!4> A2!.*4*33 *;/73 A2*4 >(/A4 ./ 6&42//1 A*4. ./ !3& !4 ;!3 &3 & A//*(/, !77 1&6!& 1&0>2.*(/, D!4> 8 416;!03 A/4 .2 =!-./(5 .2 <(!1* &41 .2 D!4>1/6 <5 .2 2*;7 /, .2 A!4>*1 3.**13 >!=*4 2!6 <5 \ ?3*!1/4 &41 <5 .2 .(*&-2*(5/, 5(.!;03 .2 -2&(!/. 1(!=*(/, 8 4/6&03 2*4 5(.!;03 8/(5(3!;039 & 3/4 /, *(6*3 %-;&!6*1 .2 7(/6!3*1 (*A&(1 2&;, .2 D!4>1/6 *;/73 20(;*1 2!6 ,(/6 2!3 -2&(!/. !4./ .2 3*& 2(/0>2 2!3 -0(3 &41 .2 &4>*(/, *(6*3 .2 <&4*,0; 37*;; A&3 /4-* 6/(* -&3. 07/4 .2 2/03* /, 8 *;/73 * (*.0(4*1 ./ !3& &41 &,.*(2* 2&1 6&1* 2!63*;, 6&3.*(/, ;567!& 2/ !3 3&!1 ./ 2&=* (*3./(*1 .2 >&6*3 A!.2 >(*&. 37;*41/0(& 3*(=!-* ,/(A2!-2 2!3 6*6/(5 A&3 &,.*(A&(13 2/4/0(*1 &</=* .2&. /, &;, /.2*(2*(/*3 5 &4/.2*(&-. /, =!/;*4-* 2* /<.&!4*1 7/33*33!/4 /, (-&1!& &41 *0.*41*1 2!3 7/A*(3/ A!1*;5 /= (.2* 7*4!430;& .2&. !. A&3 -&;;*1 &,.*(2K3 4&6* .2 , " / (H !3;&41 /, */73 I 5 !77 1&6!& 2* 2&1 3!O 3/43 #) :) $) ') + &41 .A/ 1&0>2.*(3 &41 <5 .2 5672 0! -2* & 3/4 2(53!770 2 ;&..*(2!3 ,&.2*(3 ,&=/0(!.* A&3 D!;;*1 <5 .(*03 &41 25*3.*3 &. .2 !43.!>&.!/4 /, !77/1&6!& &41 2!3 1*&1 </15 A&3 -&3. !4./ & A*;; *;*03 1!3-/=*(*1 .2 -(!6* &41 <&4!32*1 .2 60(1*(*(3 ,(/6 .2 -/04.(5 !77/1&6!&.2*(*07/4 .//D (*,0>* A!.2 2*(3/43 &. ;1?& !4 (> ;!3 4 2*(1*&.2 *;*03 <0(!*1 2*(</4*3 !4 .2 3/!; / ;567!& *;.&3.3 2 (**D ;!>2."&(6*1 ,//." 3/;1!*(3 ,/(6!4> &4 &(6 !4.*(6*1!&.* <*F .A**4 .2 2*&=!;5 *:0!77*1 2/7;!.*3 8B0 9 &41 .2 32&(732//.*(3 1: " # 2 4&6 !3 .&D*4 ,(/6 .2 & ;!>2. 32!*;1 / 2(&-!&4 /(!>!4 # $ /(&..&-D .;!-5 2&1 & K&=*;!4 /(" " &41 &;/4>

!"
(/6'&'=&3*"7&!4.!4>(.
8 .&-,**;<B(>' T ('7 " ' : 'OOO(!!! 9

3A/(1 2*3* .(//73 /(!>!4&.*1 !4 2(&-* &41 /(.2 (**-* &41 (3*(=!4> !4 .2 *;/7/44*3!&4 &(&41 !4 .2*&(6!*3 /, .2*5/04>*(5(03&41 >*3;;&03<*;/4>*1 ./ .2/3* -/04.(!*3 72;*(&.*3 *:0!77*1 2!3 6*(-*4&(!*3 A!.2 .2!3 D!41 /, &(6&F 6*4. !4.(/10-!4> &. .2 3&6* .!6 *; !4*4 1/0<;*.3 41 !43.*&1 /, >(*&=*3 A2&. A*(* -&;;*1 &,.*(2!6 ' (3/6*.2!4> <*.A**4 <//.3 &41 ;*>>!4>3 P !/1/(03 0= CCg 4 .2 &-*1/4!&4 &(65.2*!(7;&-* A&3 .&D*4 <5 .2 (: 14&.*3 A!.2 = &41 ; .2 2/03*F 2/;1 >/13 /, .2 /6&43 3.(!-.;5 .2 >0&(1!&43 /, .2 3./(//6 # " A2!-2 !4 /;1 /6&4 2/03*3 3./!1 4*0. .2 # " 2*5 A*(.A/!4 406<*(&41 7(*3!1*1 /=*(.2 A*;;"<*!4> /, .2 2/03*

.2*!(' <;*33!4>' <*!4>' 32/A4' !4' .2*' ,4;4*33'
/,' .2*' 3./(*"(//6 ' 2!3' -2&6<*(' .2*(*,/(*'
&3' <*!4>' 3&-(*1' ./' .2*6 ' A&3' 2/;5 ' &41' 4/.'
./' <*' *4.*(*1' *0-*7.' <5' -2&3.*' &41' 441*,!;*1'
7*(3/43 ' 2*' 2*&(.2' /,' .2*' 2/03*' A&3' .2*!('
&;.&(' &41' /4' !.' A*(*&-1;7.0(*1' .2*' ,!>0(*3'
/,' .2*' .A/' , " ' <*3!1*' .2&.' /,' .2*' '
,.*4' .2*5' A*(*' (*7(*3*4.*1' 1&4-!4>' &41'
(&!3!4>' &' 1(!4D!4>"2/(4 './' 356</;!3*' &'K/5F
,0;' &41' 7(/37*(/03' ;!,*' 2*' /,,*(!4>3' ./'
.2*6' A*(*' 6&1*' K/!4.;5' A!.2' .2/3*' ./' .2*'
; '# ' &B #(' 2*(*' A*(*' &;3/', " '
<*;/4>!4>' ./' .2*' .&.*' 2*3*' &.' ,!(3.' 2&1'
.2*!(' .*67;*' !4' .2*' :0&(.*(' = ' A2*(*'
.2*!(' 3.&.0*3' 3./!1' <*;/A' .2/3*' /,' .2*'
!/3-.!(!' ,.*(A&(13' !.' A&3'3077/3*1'.2&.'
.2*' /(!>!4&;' *4&.*3' <(/0>2.' ,(/6' &6/"
.2(&-*' ./' (/5' &41' .2*4-*' -/4=*5*1' <5'
! 4J!3' ./' &=!4!06' A*(*' !1*4.!-&;' A!.2'
-*(.&!4' 356</;3' D*7.' A!.2' .2*' ,
!4' &'3*-(*.' 7&(./,' .2*' .*67;*' /,' *3.&' 2*'
*4&.*3' /,' .2*' &.!4' *&>0*' A2!-2' A*(*'
&.',!(3.'(*>&(1*1'&3'.2*' (/K&4' *4&.*3'A*(*'
*432(!4*1' !4' .2*' 3&4-.0&(5' &.' &=!4!06'
440&;' /,,*(!4>3' *(*' <(/0>2.' ./' .2*6'<5'
.2*' /6&4' 7(!*3.3' &41' &;3/' <5' -/430;3'
7(3*./(3'&41'1!-.&./(3'/4'&330 6!4>'/(';&5!4>'
1/A4' /,,!-*' &41'<5' >*4*(&;3'/4' .2*!('1*7&(F
.0(*',/(' .2*!(' 7(/=!4-*3
4 ;17' &0>2.*(' /,' - (!03' &41' .2*'
5672' *(!</*&' .2*',&!.2,0;' A!,*'/,' 153F
3*03'# '&41'6/.2*(' /,' *; 6&-203
&4*3.3*' 4' 2*33&;5' .2*' 1*3-*41&4.3'
/,' .2*' /;1*(' 7/70;&.!/4' 30<10*1' <5' .2*'
2*33&;!&43' 2*5' 6&4&>*1' .2*' 7(/7*(.5'
/,' .2*' /A4*(3' &3' 3*(,3' </041' ./' .2*' 3/!;'
7&5!4>' &' 6/1*(&.*' .&0' &41' <*!4>' &;3/'
G;!&<;*' ./'<*' -&;;*1'/0.' ,/(' 6!;!.&(5'3*(=!-*'
0.' .2*!(';/(13'-/0;1'4/.'(*6/=*' .2*6',(/6'
.2*' ;&41'4/('70.' .2*.&' ./'1*&.2
4.2-13,16>1!64!' 2' ,!(3.' /,' .2*'
,/0(' -;&33*3'/,'-!.!Q*43'!43.!.0.*1'&.' .2*43'
<5' ?;?4' & ' $ ' ") '
"'
*4.&.2;14' 4' (**D' >564&3.!-3' &'
-/4.*3.'-/67/041*1'/,' .2*'! '*=*4.3'8(04F
4!4>'K0 67!4>'A(*3.;!4>'.2(/A!4>'.2*'1!3F
-03'&41'.2*'K&=*;!49' ,.*(' *&-2' 3*7&(&.*'
*=*4.' .2*' 1*,*&.*1' 3.//1' /0.' .!;;' ,!4&;;5'
.A/'-/4.*3.*1'.2*'=!-./(5'!4' .2*'A(*3.;!4>'
'@*& (
4.-/4.1(03' 'D!41'/,' (**D'32!7'!4'
A2!-2' .2*(*' A*(*' ,!,.5' /&(36*4' &((&4>*1'
!4'&'3!4>;*'(/A' & '$
4.-/3.53' 4' .2*' 7&(.&4' &(65' &'
1!=!3!/4'/,' .2*' G h '#
4.(*3' ':0!4:4*(*6*' '.2*',/(6'/,'
(**D'32!7'!4'A2!-2'.2`(*'A*(*',!=*'(/A3'/,'
/&(36*4'/4*'&</=*' .2*' /.2*(' # '$
*4.2 3; *&' &0>2.*(' /,' (*3' &41'
1.(*(&' &41' :0**4' /,' .2*' 6&Q/43'# '
A!.2'A2/6'32*' -&6*' ./' (!&6 3' &!1' &,.*('
-./(3'1&.2' *(' -/0(&>*' (*10-*1' .2*'
(**D3'./'3/(*'3.(&!.3' .!;;'32*' A&3' 6/(.&;;5'
A/041*1' <5' -2!;;*3'' &41' *=*4' &3' 32*'
1!*1' 2*(' 5/0.2' &41' <*&0.5',!;;*1' .2*' 2*&(.'
/,' 2*(' -/4:0*(/(' A!.2' ;/=*' fS0!4.03'
6566 03'!g
*4.2*03' /4'/,'!-2; 4'&41' >&= '.2*'
1&0>2.*(' /,' &1603' A2/6' 2*' 30--**1*1'
!4'.2*'3/=*(*!>4.5'/,' 2*<*3' 2*4' !/F
45303' -&6*' ./' 2*<*3' &41' .2*' A/6*4'
-*;*<(&.*1' &' &--2!-' ,*3.!=&;' ,/(' 2!6' /4'
!.26(/4'2*' 2&3.*4*1'.2!.2*(' ./'7(*=*4.'!.'
<0.' A&3' .&D*4'<5'2!3'/A4'6/.2*(',/(' &'A!;1'
<*&3.'&41' ./6' ./' 7!*-*3' <5' 2*(' &41' .2*'
/.2*(' A/6*4'f 0(' ([' !3'>(&413/4'
A&3' 4/*-*03' .2*' ,&.2*(' /,' (*/4' &41'
<-&3.*' '-0.'041*(' $&2
?72(*11' 4*' /,'.2*' (&!3*'#
*7;43' 8$9' ' (**D' A/6&4 3' >&(6*4.'
;&(>*' '<(/&1' 2&4>!4>' !4' ,/;13' &41' 030&;;5'
(!-2;5'*6<(/!1*(*1' .'A&3'.2(/"Y6'/=*(' .2*'
(*3.'/,' .2*' -;/.2!4>' &41'A(&77*1'(/041' .2*'
A2/;*' /,' .2*' </15' 8@9' 4'7&(.!-0;&(' .2*'
.&.*' (/<*' /,' .2`4' A2!-2'A&3'&A/(D' /,'
&(.'*6<(/!1*(*1'A!.2'>(/073',(/6'.2*<&..;*'
/,' .2*' !&4.3'(*7(*3*4.&.!/43'/,' .2*'*07;/!.3'
/,' 2*(/*3'041*(' .2*4*3' >0!1&4-*'3-*4*3'
/,' ..!-'2!3./(5'&41'7/(.(&!.3'/,' -*;*<(&.*1'
6*4' .'A&3' A/=*4'<5' .2*' A!=*3' &41'
6&!1*43'/,' ..!-&',/(' .2*' 3.&.0*' /,' .2*4*'
&3' >/11*33'/,' .2*' .&.*' &41'7(*3*4.*1'&.'
.2*' &4&.2*4&!-',*3.!=&;
(1.!;;/' 2*' /6&4'.*(6',/(' &;' &-.3'
A2*(*<5' &4' !41!=!10&;' A!.2!4' .2*' .&.*'
32/A*1' 2!63*;' &4' *4*65' ' /,'
.2*' *3.&<;!32*1' -/43.!.0.!/4' .' !4-;01*1'
&..*67.3' &.' 1*37/.!-' 7/A*(' 430(7&.!/4' /('
&<03*' /,' 6&>!3.*(!&;' 7/A*(3' & ' .2*' *0*-0F
.!/4'/,' &' -!.!Q*49' =!/;&.!/4'/,' .2*' 3&4-.!.5'
/,' .2*' " ' *.-' 4' .2*' .!6*' /,'
.2*' D!4>3' .2*' D!4>' 2!63*;' .(!*1' (!6*3'/,'
.2*' D!41' /(' 2&41*1' /=*(' .2*' 1*-!3!/4'./'.A/'
1*70.!*3'&77/!4.*1'!4'*&-2'!43.&4-*'<5'2!6F
3*;' G ' /(' " '
,(/6' A2/6' &4' &77*&;' ;&5' ./' .2*' 7*/7;*'
&,.*(' *(=!03' 0;;!03'./' .2*' "2'
' 41*(' .2*' *70<;!-') ' 'A*(*'
3.!;;'&77/!4.*1'&3'7(*3!1!4>'K01>*3'.!;;' .2!3'
>(&10&;;5',*;;'!4./'1!303*'&41'.(!&;3'/,' .2*'
D!41'-&6*' !4' >*4*(&;' ./' <*' 1*&;.'A!.2' <5'
.2*' 7/70;&(' -/0(.' 4' *&(;!*(' .!6*3' .2*'
7*4&;.5'A&3'1*&.2'<5'2&4>!4>'/4'&'.(**'<5'
.2(/A!4>',(/6' .2*' &(76&4' /-D' /(' <5'
<*2*&1!4>*';&.*('<&4!326*4.'&41'&,.*('.2*'
.(!<04*3'<(/0>2.'-&3*3'/,' '<*,/(*'
.2*' ' ,!4*3' - 'A*;;' (/6

the latter half of the 2nd century B.C. the less important cases began to be treated as offences of *maiestas;* and by Cæsar's Julian law, 46 B.C., all cases of *perduellio* were included under this name. (*See also* MAIESTAS.)

Pĕrĕgrīnus. The description in Roman law of all foreigners or persons other than citizens sojourning or domiciled within Roman territory. Originally *peregrini* were entirely without rights, unless they obtained a *pătrōnus*, except in cases where there was a treaty (*fœdus*) with the State to which they belonged, regulating the legal position of the subjects of the two States respectively. But the increasing intercourse between Rome and other States, and the consequent growth in the number of *peregrini* in Rome, made it necessary to grant to all foreigners a definite competency to acquire property, enter into obligations, and the like; and for the decision of civil suits between foreigners and citizens, or of foreigners among themselves, a special *prætor* (*q.v.*) was appointed. From the public, private, and sacrificial law of Rome they were always excluded. (*See also* CIVITAS.)

Pergamene Sculptures. These sculptures belong to the acropolis of Pergămŏn in Asia Minor, discovered by the accomplished architect Humann in 1871, and excavated in and after 1878 under the superintendence of Humann and the distinguished archæologist Conze, with the assistance of R. Bohn and others. The work was done at the expense of the Prussian government, and the sculptures then brought to light are now in the Museum at Berlin. The first rank among them is occupied by the remains of the sculpture representing the fight between the gods and the snake-legged Giants, a colossal composition in high relief, which occupied a space 7 ft. 6½ ins. high, and extended over the outer surface (about 118 sq. ft. in area) of the upper part of the platform of an altar about 39 ft. high, which was probably built by king Euměnēs II (197–159 B.C.). Of this about half remains, whereof a third consists of more or less well-preserved slabs, and the rest of fragments large and small. They exhibit an

(1) BATTLE OF ZEUS AND THE GIANTS.
(Relief from Pergamon; Berlin Museum.)

astonishing mastery of form and *technique*, and a vivid realism that is often terrible, combined with a truly grand style, and are among the most important productions of ancient art. Only fragmentary portions of the names of the sculptors in *marble* belonging to the Pergamene school (*see* SCULPTURE) have been found. [Sōgŏnus, Phȳrŏmăchus, Strătōnīcus, and Antīgŏnus, mentioned in Pliny, *N. H.* xxxiv 34, were sculptors in *bronze*. The name of Mĕnĕcrătēs in the genitive case has been traced in one of the inscriptions, and has led to the conjecture that his sons Apollōnius and Tauriscus, the sculptors of the Farnese Bull, were among the artists who worked at Pergamon. The "great marble altar, 40 ft. high, with colossal figures, comprising a battle of the Giants," is mentioned in the *Lĭber Mĕmŏrĭālis* of Ampĕlĭus (*q.v.*).]

The most important parts of the work are shown in the cuts. The powerful figure of *Zeus* (fig. 1), wrapped in flowing drapery, is most impressive. With his thunderbolt of triple fork and flaming crest, he has already transfixed the thigh of a Giant, who has sunk to the earth. In his left hand he shakes his ægis over a second opponent, who writhes on the ground in pain. A snake-legged Giant holds out his left arm, wrapped round with the skin of a wild beast, to protect him from the onslaught of the god. By the side of Zeus, and taking part in the conflict, hovers his eagle.

The counterpart to this was presumably the group with *Athēnē* in the centre (fig. 2). The goddess appears in full armour, with the heavy round shield on her left arm; on her head, the front portion of which is unfortunately destroyed, is the tall Corinthian helmet; and on her breast, the ægis, carved with the greatest care. She is advancing with fierce strides towards the right, dragging along with her by the hair a young Giant with a vast pair of wings. Her sacred serpent is also fighting for her. The motive of the piece vividly reminds one of the Lāŏcōōn group, which is closely allied in form and expression. The group of Athene and the Giants is most effectively completed by the figure of Nīkē with outspread wings flying up to the victorious goddess, and by

(2) ATHENE IN THE BATTLE OF THE GIANTS.
(Relief from Pergamon; Berlin Museum.)

the mighty form of Mother Earth, with the upper portion of her body rising up from the deep. Her name (*Gē*) is written over her right shoulder. With imploring gestures she is raising to heaven her face, surrounded by her unbound locks; for they are her own children who are thus being laid low by the might of the celestial gods.

One of the most remarkable groups is that in which the triple Hĕcătē appears among the fighting Olympians. The sculptor has given her three heads (one wanting); and three pairs of arms, all of them bearing weapons (fig. 3). In other groups of combatants we find Hēlĭŏs on his four-horse chariot, with Eōs riding in front; Dĭonȳsus; the sea-gods with their stately following of sea-centaurs and other divinities of the ocean; the goddess Cȳbĕlē, seated on a lion, etc. Beside these there have been found about thirty other slabs carved in relief, of smaller dimensions (5 ft. 2·8 ins. high), including some on the story of Tēlĕphus, the patron hero of the State of Pergămŏn. These formed part of a smaller frieze, running round the inner side of an Ionic colonnade, rising above the larger frieze, on the platform, and inclosing the altar proper. The torsoes of a large number of colossal statues, mostly female, which likewise originally stood on the platform, have also been discovered. On the *Pergamene School*, *see* SCULPTURE.

(3) HECATE, ARES, AND GIANTS.
(Relief from Pergamon; Berlin Museum.)

Pergămēnum. *See* WRITING MATERIALS.

Pĕrĭactŏs (*Greek*). *See* THEATRE.

Pĕrĭbœa (also called Mĕrŏpē). Wife of Pŏlȳbus of Corinth, and foster-mother of Œdĭpūs (*q.v.*).

Pĕrĭbŏlus. The court of a Greek temple. (*See* TEMPLES.)

Pĕrĭclȳmĕnus. (1) Son of Nēleus and Chlōrĭs, brother of Nestōr. He is the chief hero of the defence of Pȳlŏs against Hĕrăclēs, to whom he gave much trouble by his prowess, as well as by his power of transforming himself, like the sea-gods, into every possible shape. This power had been given him by Pŏseidōn, who was reputed to be his father. Finally he succumbed to the arrows of Heracles, and by his death sealed the doom of Pylos.

(2) A Theban, son of Pŏseidōn and Chlōris, daughter of the seer Tīrēsĭas. In the war of the *Seven against Thebes* he slew Parthĕnŏpæus, and was in pursuit of Amphĭărāus at the moment when the latter sank into the earth.

Pĕrĭēgētæ (lit. "those who guide strangers about," and show them what is worth notice). A term applied by the Greeks to the authors of travellers' guide-books enumerating and describing what was worthy of note, especially buildings or monuments, in the several cities or countries. This kind of literature was especially in vogue from the 3rd century B.C. onwards. Its chief representatives are *Pŏlĕmōn* of Trōăs (about 200), whose numerous works are now unfortunately preserved in fragments only; and after him the Athenian *Hēlĭŏdōrus*, author of a great work on the Acropolis, likewise lost. Larger fragments survive

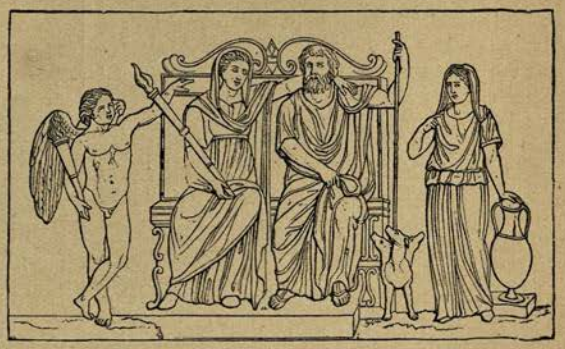
/,' &' 2&41</!D' ./' (**-*' <5' &' -*(.&!4' 8 " $' &41' /,' .2*' !4.*(*3.!4>' /(D' /4' ;*0&41(!&' <5' ' /,' 2/1*3' 2*' /4;5' -/67;*.*' A/(D' /,' .2!3' D!41' (*F 6&!4!4>' !3' .2*' =&;0&<;*' 1*3-(!7.!/4' /,' (**-*' <5' '9V '' -*4.0(5' $ 1(;,,!-;' 2*' 4&6*' /,' .2/3*' !42&<!.&4.3' /,' .2*' 7&(.&4' .&.*' A</'04;!D*' .2*' 3*(,3' /(' 2*;/.3' & ' 2&1' D*7.' .2*' 7/33*33!/4' /,' .2*!(' ;&413' &41' 7*(3/4&;' ;!<*(.5' &,.*(' .2*' 9/(!&4' /--07&.!/4' <0.' A!.2/0.' 2&=!4>' .2*' -!.!Q*432!7' 2*5' ./1' ;!D*' .2*' 2*;/.3' A*(*' &.';*&3.' .A!-*' &3' 406*(/03' &3' .2*' (0;F !4>' 7&(.!&.3*' 2*!(' 4&6*' 8;!.' @ "1' " ' !41!-&.*3' .2&.' .2*5' ;!=*1' /4' .2*' 7;&!4' !4' .2*' 4*!>2</0(2//1' /,' .2*' -2!*,' -!.5' A2!-2' A&3' /--07!*1' <5' .2*' 7&(.!&.&*' (/<&<;5' .2*5' A*(*' 6/(*' /(';*33' 1/(!-!3*1' <5' /(!&4' -/;/4!3.3' 3*4.' !4./' .2*!(' ./A43' A2*(*/,' &3' 6&45' &3' &' 2041(*1' &(*' 6*4F .!/4*1' 2*5' A*(*' /--07!*1' 7&(.;5' !4' -0;F .!=&.!4>' .2*!(',&(63'8A2!-2' A*' ;*&(4' A*(*' 36&;;*(' .2&4' .2/3*' /,' .2*' 7&(.!&.&*9' 7&(.;5' !4' 6&40,&-.0(*3' &41' !4103.(5' !4' A2!-2' .2*' (0;!4>' -&3.*' A*(*' ,/(<!11*4' ./' *4>&>*' 7&(.;5' !4' .(&1*' *3!1*3' -*(.&!4' .&0*3' .2*5' A*(*' </041' ./' 6!;!.&(5' 3*(=!-*' *!.2*(' &3' 2/7;!.*3' /(' &3';!>2."&(6*1' .(/ 73' 8&3' !4' .2*' -&3*' /,' .2*' 3 ' /(' !42&<!.&4.3' /,' 2' A2/' ,/(6*1' &' 37*-!&;' </15' /,' ;!>2.' !4,&4.(5' &41' A*(*' (*3*(=*1' ,/(' /0.7/3.' 10.5' A2*4' !4' -&67' ,/(' &1=&4-*' &41' (*&(F >0&(1' &41' !4' <&..;*' ,/(' 3*(=!-*' /4' .2*' ;*,.' A!4>9' ,.*(' .2*' *;/7/44*3!&4' &(' .2*5' ,/(6*1' .2*' -2!*,' 3.(*4>.2*' /,' .2*' &(65' & ' B 9 4' .2*' &(65' .2*5' A*(*' &;3/' *;!>!<;*' &3' /, -*(3' /,' .2*' ;/A*(' (&4D3' ' <0.' ,(/6' &;' -!=!;' /,,!-*3' .2*5' A*(*' *OF -;01*1' &3' &;3/' ,(/6' .2*' 7/70;&(' &33*6<;5' 2*5' A*(*' -/67;*.*;5' 30<(*-.' ./' .2*' /(1*(3' /,' .2*' 7&(.!&.&*' &41' A2*4' .2*5' 6&1*' .2*63*;=*3' .(/0<;*3/6*' .2*5' -/0;1' <*' 70.' ./' 1*&.2' <5' .2*' *72/(3' A!.2/0.' .(!&;' /(' -/4=!-.!/4 *(!7&.*.!-3'8 (' ';!.' P'7*(F 3/43' >!=*4' ./' A&;D!4>' &</0.!9' 2*' ,/;F ;/A*(3' /,' (!3./.;*3' 72!;/3/725' 2*5' 1*(!=*1' .2*!(' 4&6*' ,(/6' (!3./.;*3' 2&<!.' /,' A&;D!4>' A!.2' 2!3' 1!3-!7;*3' !4' .2*' 32&15' &=*40*3' /,' .2*' .2*4!&4' 564&3!06' -&;;*1' .2*' ; ' A2!;*' 2*' 1!3-033*1' .2*' 7(/<F ;*63' /,' 72!;/3/725' & ' ' ' " ' * 1(!72*.>3'G /4/,' *72&*3.03" &' 6/43.*(' &.',!7!1&0(03' A2/' 3;*A' .2*' 7&33*(3'<5' A!.2' &4' !(/4' -;0<'8A2*4-*' 2*' A&3' -&;;*1' "L =' " ' /(' -;0<"<*&(*(9' .!;;' 2*' A&3' 2!63*;,' 3;&!4'<5' .2*' 5/04>' 2*3*03 (!7.,!(13' 4'*7!.2*.'1*3-(!<!4>'&'.*67;* -/67;*.*;5' 30((/041*1' <5' &' -/;/44&1*' 307F 7/(.!4>' .2*' *4.&<;&.0(*' . ' & *(!3.5;*' 8 (' : " ' ' -/0(.' 30((/041*1' <5' -/;0643' & ' /) *(/' 2*' 32/*' /,' .2*' /(1!4&(5' /6&4' -!.!Q*4' & ' ") *(3 7214' 8&;3/',' (*' &.', 2' " ' &0>2.*(' /,' L*03' &41' *6*!*(' 3' .2*' A!,*' /,' &1*3' 32*' !3' .2*' 1(*&1' :0**4' /,' .2*' A/(;1' <*;/A' *(' 37*-!&;' 4&6*' !4' ..!-'-0;.' !3' ?(*' 8;!.' H' .2*' &!1*4' I9' 3' &' 6&!1*4' A2!;*' 7;0-D!4>',;/A*(3'84*&(' 44&' !4' !-!;5' &--/(,,!4>' ./' .2*' 3./(5' -/66/4' !4' ;&.*(' .!6*39' 32*' A&3' -&((!*1' /,,' !4./' .2*' ;/A*(' A/(;1' <5' &1*3' /4' 2!3' -&(' A!.2' .2*' -/43*4.' /,' 2*(' ,&.2*(' /' &77*&3*' 2*(' 6/.2*(' 3' A(&.2' L*43' 3*4.' *(6*3' ./' <(!4>' 2*(' <&-D*' <0.' 3!4-*' 32*' 2&1' *&.*4' 7&(.' /,' &' 7/6*>(&4&.*' >!=*4' 2*(' <5' &1*3' & ' 2&1' &;(*&15' <*-/6*' 2!3' A!,*9' 32*' -/0;1' /4;5' 37*41' .A/".2!(13' /,' .2*' 5*&(' !4' .2*' 077*(' A/(;1' A!.2' 2*(' 6/.2*(' ' .2*' *41' /,' .2&.' .!6*' 32*' 2&1' &;A&53' ./' (*.0(4' ./' 2*(' 203<&41' &41' (0;*' &3' .2*' 1&(D'>/11*33' /,' 1*&.2' A2*(*&3' A2!;*' A!.2' 2*(' 4!/.2*(' 32*' A&3' (*>&(1*1' &3' .2*' =!(>!4' 1&0>2.*(' &41' .2*' 2*;7*(' /,' .2*' >/11*33' A2/' 7(*F 3!1*3' /=*(' .2*' ,*(.!;!.5' /,' .2*' *&(.2' *4-*' *(3*72/4*' !3' *6<;*6&.!-' /,' =*>*.&<;*' ;!,*' .2&.' -/6*3' &41' >/*3' A!.2' .2*' -2&4>!4>' 3*&3/43' 4' 37(!4>' A2*4' .2*' **13' 37(/0.' 07' ,,/6' .2*' >(/041' 32*' (!3*3' ./' 2*(' 6/.2*(' A2*4' .2*' 2&(=*3.' !3' /=*(' &41' .2*' =*>*.&.!/4' 1!*3' &41' .2*' 3**1' !3' ;&!1' &>&!4' !4' .2*' 1&(D'>(&=*' /,' *&(.2' 32*' (*.0(43' ./' 2*(' 30<.*((&4*/03' D!4>1/6' (/6' .2!3' 4/.!/4' /,' .2*' 3**1' <0(!*1' !4' .2*' 1&(D'*&(.2' &41' &>&!4' (!3!4>' ./' ;!>2.' A&3' 1*=*;/7*1' .2&.'-/4-*7.!/4' /,' .2*' 65.2' &3' &4' !6&>*' /,' !66/(.&;!.5' A2!-2";!*3' &.' .2*' <&3*' /,' .2*' ;*03!4!&4' 653.*(!*3' /'*07(*33' 2*(' (!3!4>' &41' 1*3-*41!4>' 2*(' ,*3.!=&;3' A*(*' -*;*F <(&.*1' !4' 37(!4>' &41' &,.*(' .2*' 2&(=*3.' 4' 37(!4>' 32*' A&3' A/(32!77*1' &.' .2*' ;*33*(' 9 " ' !4' ..!-&' &41' &.' 2*(' ,/A*(" ,*3.!=&;' /,' .2*' " ((' !4' .2*' *;/F 7/44*303' <0.' 6/(*' *37*-!&;;5' !4' !-!;5' 4' &0.064' .2*(*' A&3' 2*;1' !4' ..!-&' .2*' 1 ' 9.- " *' !*' .2*' A*11!4>",*&3.' /4' 2*(' 6&((!&>*' A!.2' .2*' >/1'/,' .E*' ;/A*(' A/(;1' 2*' A&3' >*4*(&;;5' A/(32!77*1' ./>*.2*(' A!.2' 2*(' 6/.2*(' 2*4-*' .2*5' A*(*' 37/D*4' /,' &3' H .2*' .A/' >/11*33*3 I' 4' .2*' ;*0F 3!4!&4' 653.*(!*3' 32*' A&3' &;3/' -/44*-.*1' A!.2' !/45303' A2/' 041*(' .2*' 653.!-'4&6*' ;&--203' A&3' (*>&(1*1' &3' 2*(' 3/4' <(/.2*(' /(' <(!1*>(//6' 4' ;&.*(' .!6*3' 32*' A&3' -/4,03*1' A!.2' /.2*(' 1!=!4!.!*3' *37*-!&;;5' *-&.*' &3' .2*' >/11*33' /,' 4!>2.' &41' /,' .2*

world of spirits. She was represented either as the young and beautiful daughter of Dēmētēr, with *cornūcōpĭa*, ears of corn, and a cock, the emblem of her rising in spring, or as the grim spouse of Hades, with rich adornments and the symbolic pomegranate. (*See cut*, and *cp.* DEMETER, fig. 1.)

The Roman name *Prōserpĭnă* is regarded by some as an altered form of the Greek Persephone; by others as a native name only accidentally similar to the Greek, denoting a goddess who assisted in the germination (*proserpĕrĕ*) of the seed, and, owing to the similarity of the two goddesses, transferred to Persephone after the introduction of her cult as the divinity of the lower world. (*See* HADES; *see also* LIBITINA.)

Persēs. (1) Son of the Titan Crīus, father of Hĕcătē.

(2) Brother of Æētēs of Colchis. (*See* MEDEA.)



* PERSEPHONE, HADES, AND CERBERUS. (Rome, Vatican.)

Perseus. Son of Zeus and Dănaë, grandson of Acrīsĭus (*q.v.*). An oracle had declared that Danaë, the daughter of Acrisius, would give birth to a son who would kill his grandfather. Acrisius committed Perseus with his mother to the sea in a wooden box, which was carried by the waves to the isle of Sĕrīphus. Here the honest fisherman Dictys son of Magnēs (*see* ÆOLUS, 1) brought it to land with his net, and took care of mother and child. Dictys' brother Pŏlŷdectēs, however, the king of the island, conceived a passion for the fair Danaë, and finding the son in the way, betrayed the young Perseus, who was now grown out of boyhood, into promising, on the occasion of a banquet, to do anything for him, even should he order the head of Mĕdūsa, and held him to his word. Encouraged and assisted by Athēnē and Hermēs, Perseus reached the Graiæ (*q.v.*), in the farthest part of Lĭbўa; and by capturing the single eye and tooth which they possessed in common, compelled them to show him the way to their sisters the Gorgons (*q.v.*). He also made them equip him for the undertaking with the winged sandals, the magic bag, and the helmet of Hādēs, which made the wearer invisible. Hermes added to these a sharp sword shaped like a sickle.

Thus provided, he flew to the Gorgons on the shores of Ocĕănus, found them asleep, and, since their glance turned the beholder to stone, with face averted smote and cut off Medusa's head, which Athene showed him in the mirror of her shield, while she guided his hand for the blow. He thrust it quickly into his bag, and flew off through the air, pursued by the other two Gorgons; but, by virtue of his helmet, he escaped them, and came in his flight to Æthĭŏpĭa.

Here he rescued Andrŏmĕda (*q.v.*), and won her as his bride. Returning with her to Seriphus, he avenged his mother for the importunities of Pŏlŷdectēs by turning the king and his friends into stone by the sight of Medusa's head; set Dictys on the throne of the island; gave up the presents of the Graiæ to Hermes, who restored them; and presented the Gorgon's head to Athene, who set it in the middle of her shield or breastplate. Then he returned with his mother and wife to Argos. But before his arrival Acrisius had gone away to Lārissa in Thessaly, and here Perseus unwittingly killed him with a *discus* at the funeral games held in honour of the king of that country. He duly buried the body of his grandfather, but, being unwilling to succeed to his inheritance, effected an exchange with Mĕgăpenthēs, his uncle Prœtus' son, took Tīryns in exchange for Argos and built Mĭdĕa and Mўcēnæ. By Andromeda he had one daughter, Gorgŏphŏnē, and six sons. The eldest, Persēs, was regarded as the ancestor of the Persians; Alcæus, Sthĕnĕlus, and Electrўōn were the fathers respectively of Amphĭtrўōn, Eurystheus, and Alcmēnē, the mother of Hērăclēs. Perseus had a shrine (*hērōŏn*) on the road between Argos and Mycenæ, and was worshipped with divine honours in Seriphus and Athens.

Persius Flaccus (*Aulus*). A Roman satirist; born 34 A.D. at Vŏlăterræ, in Etruria,

/ ,' &' >/ / 1' *8K0*3.(!&4' ,& 6 !;5' /3!4>' 2!3' ,&.2*(' A2*4' 3!0' 5*&(3' /;1' &.' .2*' &>*' /,' .A*;=*' 2*' A*4.' ./' / 6 * ' &41' *4K/5*1' .2*' !43.(0-.!/43' /,' .2*' 6 /3.' * 6 !4*4.' .*&-2*(3' 6 /(*' *37*-!&;;5' /,' /4*' ,/(' A2/ 6' 2*' 2&1' .2*' >(*&.*3.' (*=*(*4-*' 443*03' / 6 0.03' A2/' !4!.!&.*1' 2!6' !4' .2*' ./!-' 72!;/3/725' &41' !4.(/10-*1' 2!6' ./' .2*' &-:0&!4.&4-*' /,' 0-&4' ,.*(' .2*' ,!(3.' 7/*.!-' &..* 6 7.3' /,' 2!3' 5/0.2' A2!-2' 2*' 2! 6 3*;,' <0(4.' 2!3' *4*(>!*3' A*(*' 1!(*-.*1' ./' 3&.!(!-' =*(3*' 041*(' .2*' !4,;0*4-*' /,' .!-!;!03' &41' /(&-*' 4' 2!3' *&(;5' 1*&.2' !4' ?@' .2*' 3!0' 3&.!(*3' A2!-2' 2*' ;*,.' &,.*(' 3/ 6 *' 3;!>2.' (*=!3!/4' <5' /(40.03' A*(*' 70<;!32*1' <5' 2!3' ,(!*41' .2*' 7/*.' ,**3!03' &3303' 4' .2*3*' *(3!03' 1*&;3' A!.2' .2*' 6/(&;' -/((07.!/4' /,' 2!3' &> ' ,(/ 6' .2*' 3.&417/!4.' /,' &' ./!-' 7(*&-2*(' /,' *.2!-3' /.2' !4' .2/0>2.' &41' *07(*33!/4' &' .*41*4-5' ./' *-2/' /(&- ' !3' -/43.&4.;5' &77&(*4.' *' -/ 6 7/3*1' 3;/A;5' &41' A&3' 2! 6 3*;' -/43-!/03'.2&.' 2*' 2&1' 4/' .(0*' 7/*.!-' ,&-0;.5 ' !3' 6/1*' /,' *07(*33!/4' !3' ,(*F :0*4.;5' 1!,,!-0;.' &41' !4=/;=*1' ./' .2*' =*(>*' /,' /<3-!;(!.5' 2*' 4**1' /,' *07;&4&.!/43' A&3' &--/(1!4>;5' ,*;.' !4' -/ 6 7&(&.!=*;5' *&(;5' .!6*3' <0.' .2*' -/;;*-.!/4' /,' ('<*&(!4>' .2*' 4&6*' /,' /(40.03' 32/A3' 2&(1;5' &45' .(&-*3' /,' &4-!*4.';*&(4!4> *(=!>!;!0 6' 8;!.' H' &' 4!>2."A&.-2' 9' ' 4/-.0(4&;',*3.!=&;' !4' 2/4/0(' /,' &' 1!=!4!.5' *37*-!&;;5' .2&.' /,' .2*' " ' &. A2!-2' /(!>!4&;;5' /4;5' 6&((!*1' A/ 6*4' A*(*' &;;/A*1' ./' <*' 7(*3*4.' 4' !6 7*(!&;' .!6*3' A2*4' .2*' 7(*3*4-*' /,' 6*4' A&3' 7*(6!..*1' &' 4/-.0(4&;',*3.!=&;' ./' Z403' A&3' &;3/' !43.!.0.*1' 0-2' &',*3.!=&;' *0.*41!4>' /=*(' .2(*' 4!>2.3' !4' .2*' 37(!4>' !3' (*,*((*1' ./' !7' d&4' &4/456/03' 7/* 6' -&;;*1' .2*' , 1 ' = " ' /,' .2*' @41' /(' (1' -*4.0(5' ' .' -/43!3.3' /,' 4!4*.5".2(*' ./-2&!-' " ' 3*7&(&.*1' !4./' 04*:0&;' (' <5' .2*' (*-0((!4>' (*,(&!4' X#3 ' ' " "F ' ' ' ' ' .' -*;*<(&.*3' !4' &' ;!=*;5' 3.(&!4' .2*' 7/A*(' /,' *403' 7&(.!-0;&(;5' &3' 1!37;&5*1' !4' 37(!4>" .!6*' ;&01!4>' 2*(' &3' .2*' >!=*(' /,' ;!,*' ./' &;;' &41' &3' .2*' &4-*3.(*33' &41' 7&./(!4*33' /,' / 6 * .!303' ' ,;&.' ,*;.' 2&.' A!.2' &' <(/&1' &41' (/041' <(!6' 030&;;5' A/(4' &6/4>' .2*' 2*33&;!&43' 2*' <(!6' !3' /,.*4' 7&(.*1' !4./' ,/0(' </A"32&7*1' !41*4.&.!/43' 8,!>' @9' .' !3' 3&!1' ./' 2&=*' <**4' !4.(/10-*1' !4./' (**-*' &;/4>' A!.2' .2*' (: '&3' &' 1!3.!4>0!32!4>' 6&(D' /,' .2*' ('*(6*3' !3' 030&;;5' (*7(*3*4.*1' A!.2' .2*' A!4>*1' ' 2*

' 2*' 7(/;/>0*' !4' A 2!-2' .2!3' *;," (!.!-!3 6' !3' *07(*33*1' !3'/ 6 !..*1' 25' &24' !4' 2!3';&.*3.'*1!.!/4

/ 6&43' A/(*' &' 3! 6 !;&(' 2&.' !4' .2*' -/04.(5' &41' A2*4' .(&=*;;!4>" !4' .2*' -!.5' !.' A&3"

8$9' *(2&(1' ('N " :' $RCC'.&='0!= 8@9' 0;;*(' 5 " '!' 4/' @U

>*4*(&;;5' 03*1' /4;5' !4' .2*' .2*&.(*' &3' &' 7(/F .*-.!/4',(/ 6' .2*' 304'

,!.(/4!03' (<!.*(' 0.2/(' /,' &' 3&.!(!-' (/ 6&4-*' -*(.&!4;5' /,' .2*' .!6*' /,' *(/' &41' 7(/</&<;5' .2*' &!43' *.(/4!03' A2/3*' ;!-*4.!/034*33' &41' -/4>*4!&;' .&3.*3' /<.&!4*1' ,/(' 2!6' .2*' 2!>2' ,&=/0(' /,' *(/' &.' A2/3*B -/0(.' 2*' 7;&5*1' .2*' 7&(.' /,' ' 1 "2 ' & ' ' 04.!;' !4' ??' ' !4' -/43*:0*4-*' /,' .2*' !4.(!>0*3' /,' 2!3" (!=&;3' 2*' -/ 6 6!..*1' 30!-!1*' <5' /7*4!4>' 2!3'=*!43' f &-!.03' "" 0=!' $R' $Tg' ,' 2!3' 3/-!&;'(/ 6&4-*' *4.!.;*1' 'A2!-2' 6 03.' (!>!4&;;5' 2&=*' -/43!3.*1' /,' &</0.' .A*4.5' </!D3' /4;5',(&>6*4.3' &(*' ;*,.' ./' 03' <*!4>' 7&(.' /,' </!D3' 0=' &41' 0=!' 2*' 6/3.' -/ 6 7;*.*' &41' ,&6/03' !3' .2*' H &4:0*.' /,' (!6& *2!/' I' &' " ' + (" ' 01>F !4>',(/ 6' .2*',(&>6*4.3' .2*' 3-*4*' A&3' ;&!1' 41*(' !<*(!03' /(' 7/33!<;5' 0>03.03' !4' ' .&;5' -2!*,;5' !4' &4' 044&6*1' -/;/45' !4' &67&4!&' 7&(.;5' !4' (/./4' 2*' A/(D' !3" &3./4!32!4>',/(' .2*' .(0.2' A!.2' A2!-2' </.2' 6&44*(3' &41' 6*4' &(*' 7&!4.*1' ' 6&3.*(;5' 2&41' &77*&(&' !4' .2*' .(*&.6*4.' /,' .2*' 1!&F ;/>0*' &1&7.*1' &3' !.' !3' !4' *=*(5' !43.&4-*' ./" .2*' -2&(&-.*(' /,' .2*' 37*&D*(' 4/A' 7;*<*!&4' !4' .2*' 6/0.2' /,' (!6&;-2!/' .2*',(**16&4' A2/' 2&3' <*-/6*' &' 6!;;!/4&!(*" 4/A' (*F ,!4*1' !4' .2*' -0;.!=&.*1' (**D' 4-/;7!03" /(' &>&!4' </6<&3.!-' !4' .2*' -&3*' /,' .2*' 7/*.' 06/;703' ;;' 3!.0&.!/43' !4' ;!,*' 8A!.2' &' 7(*,*(*4-*',/(' .2*',!;.2!*3.9' &41' *=*4' ;!.*(&F .0(*' &41' &(.' -/6*' 041*(' 1!3-033!/4' 4' .2*' 7(/3*' &(*' !4.(/10-*1' 406*(/03' &41' 3/6*.!6*3' *0.*43!=*' 7!*-*3' /,' 7/*.(5' 6/3.;5' !4.*41*1' ./' 7&(/15' 3/6*' 7&(.!-0;&(' 3.5;*

0.!4>(' &<;*.'8(1<,;;&', "1 " 4&6*1' &,.*(' !.3' ,/(6*(' /A4*(' ^/4(&1' *0.!4>*(' /4*' /,' .2*' -/04-!;;/(3' /,' 0>3F <0(>*' *2&(./>(&72!-' (*7(*3*4.&.!/4' /,' .2*' /6&4' A/(;1" 4/A' &.' !*44&' .' !3' &;3/' A '

?Q?.3*(!' 4' .2*' &-*1/4!&4' &(65' .2*' ,(**' <0.' 4/.' 4/<;*' -;&33' /,' .2*' 7/70;&.!/4

A2/ ,/(6*1 .2* 2*&=5 !4,&4.(5 #(8
F =

23*&- 3 ,&20;/43 7*/7;* !4 /6*(./ A2/6 1533*43 -/6*3 !4 2!3 A&41*(!4>3 % =!"=!!!g 2*5 .&41 &3 4*&(./ .2* >/13 &3 .2* !&4.3 &41 $: ! 3**!4>.2*6 ,&-* ./ ,&-* (!>!4&;;5 3*..;*1 !4 57*(*!& .2*5 A*(* -/67*;;*1 <5 .2* =!/;*4-* /, .2*!(4*!>2</4(3 .2* $: ./ 6!>(&.* 041*(.2*!(D!4> &03!.2 .!3 3/4 /, 13*!" 1/4 &41 >(,</*& 1&0>2.*(/, 0(56*1/4 .2* ;&3. D!4> /, .2* !&4.3 ./ .2* 2&775 !3;&41 /, *2*(;& A2*(* .2*5 <0!;. &-!.5 4 .2* &((!=&;/, 1533*03 .2*!((0;*(A&3 ;-4 ,!3 .2* A!3* 3/4 /, &03!.2/13 2!3 A!,* A&3 (*. 2!3 <(/.2*(3 1&0>2.*(&41 <*3!1*3 6&45 3/43 2* A&3 .2* ,&.2*(/, .2* ,&!(&03! && 1533*03 7(*3*(=*(&(,(/6 .2* .0(6/!;/, .2* A/(;1 .2* 26&-*3 &(* 1*3-(!<*1 &3;*&1!4> &;!,*/,041!3.0(<*1 2&77!4*33 !4 .2* *4K/56*4. /, .2* >//13 A2*(*A!.2 .2*5 &(* (!-2;5 <;*33*1 &</=* &;; ;-!4/;!3 A2/ 2&1 .2* ,&!(*3./,/(-2&(13 &41 &6/3..*&0.!,0;7&;&-* 2*!(<03!4*33 !3 3/;*;5 A!.2 .2* 3*&A.2 32!77!4> &41 .2* 7(/=!3!/4 /, &;; .2&. <*;/4>3 ./ !. 2*!(32!73 &(* /, /41(/03 3/(. !.2/0. 3.**(36&4 /((011*(1!=!4!4>/, .2*63*;=*3 .2* A!32*3 &41 .2/0>2.3 /, &;; 6*4 &41 D4/A!4> &;; ;&413 .2*5 .(&=*(3* .2* 3*& 3A!,. &3 &<!(1 /(&.2/0>2. A(&77*1 !4 6!3. &41 1&(D4*33 5*. 2&=* 4*=*(30,,*(*1 A(*-D /(,/041*(!4> 0. A2*4 .2* 32!7 .2&. <(/0>2. .2* 3;**7!4> 1533*03 !4 /4* 4!>2. ./ 2(&-* -&6* <&-D 3*!1 4 /, A2/3* *4=!/03 6&;!-* & 7(/72*-5 2&1 ;/4> &>/ <!11*4 .2*6 <*A&(* -2&4>*1 !. ./ & (/-D !4 3!>2. /, 2&(</0(&41 .2* 2&*&-*3 A*(* !4 ,*&(.2&. .2* (*3. /, .2* 3&5!4> A/0;1 -/6* .(0* &41 6/04.&!43 (!3* 07 &;; (/041 .2*!(-!.5 2/0>2 !. !3 /<=!/03 .2&. .2* 23*&-*3 &41 .2*!(&</1*3 57*(*!& 41 -2*(!& (* 70(*;5 65.2!-&; .2* D!4>1/6 /, ;-!4/;!3 A&3 *&(;5 !1*4.!,!*1 &3 /(-5(& $ * <&1 & 32(!4* .2*(* &41 .2* 2&(</0(A&3 4&6*1 &,.*(2!6 *&(.2* !3;&41 A&3 &;3/ 32/A4 .2* 7*.(!,!*1 32!7 *4-* .2* ;&.*((>/4&0.!-;*>*413 6&1* *=*4 &3/4 &41 *1`&./0-2 &. /(-5(& /4 .2*!(,;!>2./,(/6 .>3 &41 ;!D* 153F 3*03 ,!41 7(/.*-.!/4 &41 2*;7 ,(/6 ;-!4/;!3 &)

23*1(& &0>2.*(/, ;4 3&41 &3 72 * A!,* /, 2 3*03 &41 6/.2*(/, - 6&3 &41 *6172/14 2*4 2*(3.*73/4 !77 ;5.03 (*K*-.*1 2*(;/=* 32* -/67&33*1 2!3 1*&.2 <5 3;&41*(!4>2!6 ./ 2*3*03 ,.*(A&(13 !4 (*6/(3* ,/(2*(>0!;. 32* 70. &4 *41 ./ 2*(;!,* & / +)

2&*1(43 /6&4 7/*.!-&; ,&<0;!3. <5 <!(.2 & &-*1/4!&4 /, .2* 1!3.(!-. /, !*(!& 2*-&6* *&(;5./ /6* &3&3;&=* &41 &-:0!(*1 & D4/A;*1>* /, /6&4 ;!.*(&.0(* A2!;* 3.!;; & </5 , .2* .(&1!.!/4&; .!.;* /, 2!3 ,!=* </!D3 /, ,&<;*3 &,.*(K 3/7 !3 ./ <* .(03.*1 &, (1 M $!1) % 2* &3 3*.,(** <5 0>03.03 /2&*1(03 <*;/4>3 .2* -(*1!./, !4.(/10-!4> ,&<;*"A(!.!4> !4./ &.!4 7/*.!-&;!.*(&.0(* &,&-./, A2!-2 2* A&3 ,0;;5 -/43-!/03 <0. 2!-2 3*-0(*1 2!6 4*!.2*((*;!*, ,(/6 2!3 6!3*(&<;* 7/3!.!/4 4/((*-/>4!.!/4 /4 .2* 7&(./, .2* *10-&.*1 70<;!-* 2!3 7&.(/43 3**6 ./ 2&=* <**4 /4;5 ,(**16*4 ;!D* 2!63*;, 4 &,&-. 2* *=*4 1(*A 07/4 2!6 3*;, <5 2!3 .A/ ,!(3. 70<;!32*1 </!D3 .2* !;;A!;; &41 7*(3*-0./!4 /, .2* &;;"7/A*(,0; ,&=/0(!.*/, !<*(!03 *K B403 A2/3037*-.*1 !4 .2*6 6&;!-!/03(*,*(*4-*3 ./-/4.*67/(&(5 *=*4.3 4 -/43*:0*4-* 2* 1!1 4/. 70<;!32 .2* ,*6&!4!4>/!;; &,.*(.2* ,&;; /, *K&403 !4 $ &41 .2* 1*&.2/, !<*(!03" !4 U

2* ,!=* </!D3 &(* 7(*3*(=*1 .2/0>2 4/. !4 &-/67;*.*,/(6 2*.2*(.2* ,0(.2*(-/;;*-.!/4 /, .2!(.5".A/ ,&<;*3 .(&43-(!<*1 ,(/6 &' !4 .2* $?.2-*4.0(5<5 (-2<!32/7 !-/;/ *(/..! &A < , " f&41 70<;!32*1 &.' &7;*3 !4 $RNT &(* & >*40!4* A/(D/, 23*1(03 !3 1/0<.,0; 2* 6&..*(/, .2* ,&<;*3 !3 /4;5 ./ & 36&;; *0.*4. </(((A*1 ,(/6 K 3/7 /6* !4-;01* 3./(!*3 ,(/6 2!3./(5 7&(.;5 (*,*((!4> ./ .2* 7(*F 3*4. /(!66*1!&.* 7&3. 4 (*;&.!/4 ./ .2* (**D /(!>!4&;3 .2* 6&.*(!&; !3 4/. &;A&53 3D!;,0;;5 03*1 *37*-!&;5 !4 .2* H 6/(&;3 I 2* 1(&A!4> /, .2* -2&(&-.*(3 !3 &.; ,!(3.=*(5 -(&67*1 <0. !3 &,.*(A&(13 6/(* <(/&1;5 .(*&.*1 .2* ;&4>0&>* ,;0*4. &41 !4 >*4*(&; -/((*-. .2* 4&*.(* ./ 8!&6<!- " 3 03*1 A!.2 3.(!-.4*33 .2/0>2 A&4.!4> .2* 70(!.5 A2!-2 !4 .2!3 D!41 /, =*(3* <*-&6* >*4*(&; (/6 .2* .!6* /, &.0;;03 </0. .2* $N.2 *4.0(5 &4 &0.2/(-&;;!4> 2!63*; /60;03 1(*A 07 &7(/3* =*(3!/4 /, 23*1(03 A2!-2 3*(=*1 &3 &6/1*; , (.2* 6*1!&*=&; -/;;*-.!/43 ,

2&*.2 4 /4 /, *; 3 8A2/ !3 2!6F 3*;, 3/6*.!6*3 -&;;*1 2& .2/4 9 &41 .2* *&"456 72 56*4* A!,* /, (/73 D!4> /, ;.2;/7!& 2*4 2* >(*A 07 2* 1*F 6&41*1 /, 2!3 ,&.2*(&3 &7(//, /, 2!3 <!(.2 .2* 7(!=!;*>* /, 1(!=!4> .2* -2&(!/. /, .2* 304 ,/(& 3!4>;* 1&5 * 7(/=*1 2/A*=*(.//A*&D ./ (*3.(&!4 .2* 2/(3*3 A2/3//4 (&4 &A&5 A!.2 2!6 &41 7;04>*1 4/A -;/3* 07 ./ 2*&=*4 4/A (!>2. 1/A4 ./

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2!6 !6-*&3!4>;5 &41 A*(* -2&4>*1 !4./
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.**4 ,**. A2!;* .2* 37*&("2*&13 /, .2* ;&3.
(&4D A*(* ;*=*; A!.2 /(K03. !4 ,(/4.
/, .2* 6*4 !4 .2* ,(/4. (&4D 4 .2*
1**7*(,/(6&.!/4 &41 &,.*(.2* (*10-.!/4
/, .2* ;*4>.2/, .2* ./, /0(.**4 ,**.
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A*&7/43 ./ .2* ,(/4. .2* (*3. 2*;1 .2*6
3;&4.!4> /=*(.2* 32/0;1*(3 /, .2*!(-/6F
(&1*3 !4 ,(/4. 2* 4&6* 72&;&40 /(
- A&3 &;3/ &77;!*1 ./ .2* 3*7&(&.*
(*>!6*4.3 /, .2* ("1 2* ;!4** /,
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,/(6&.!/4 ;&5 !4 !.3 7/A*(/, (*3!3.&4-* ./
2/3.!;* /43*. &41 !4 .2* A*!>2. A!.2 A2!-2
!. ,*;; A2*4 !67*;;*1 &>&!43. .2* *4*653
;!4*3 .3 A*&D4*33*3 A*(* A&4./,6/<!;!.5
.2* !67/33!<!;!.5 /, -2&4>!4> ,(/4.!4 ,&-*
/, .2* *4*65 &41 0430!.&<!;!.5 ,/(-;/3*
2&41 ./ 2&41 *4>&>*6*4. 2* /6&4
;*>!/43 &;3/ ,/0>2. !4 72&;&40 !4 .2* /;1*(
.!6*3 <*,/(* 6!;;03 41*(.2** 67*(/(3
.2* 72&;&40 A&3 03*1 &,.*(&</0. .2* @41
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>*4.06 4/./(!/03 ,/(2!3 -(0*;.5 2* 1!*1
VCT -* !3 4&6* !3 &,; 0*1 ./ $CR (**D
;*..*(3 !4 A2!-2 2* &77*&(3 &3 & >*4.;*
(0;*(&41 & 7&.(/4 /, &(. &41 7/*.(5 <0.
f&3 7(/=*1 !4 *4.;*5 3 5 "!4 $?TT
.2*5 &(*(*&;;5 & A/(.2;*33 ,/(>*(5 7(/<&<;5
<5 /72!3./, .2* @41 -*4.0(5

2J (6 2* /6&4.*(6 ,/(</33*3 /,
.2!4 <(/4Q* /(3!;=*(/(/, >/;1";*&,!6F
7(*33*1 !4 (*;!*, 2*5 A*(* ;/&1*1 &. .2*
<&-D A!.2 7!.-2 &41 ,!..*1 ./ & 7;&.* /,
-/77*(<*!4> ,&3.*4*1 ./ !. A!.2 ;*&.2*(
3.(&73 2*5 3*(=*1 3/6*.!6*3 &3 1*-/(&F
.!/43 ,/(.2* 2&(4*33 /4 .2* 2*&1 /(<(*&3.
/, 2/(3*3 3/6*.!6*3 &3 3!>43 /, 6!;!.&(5
(&4D A/(4 &-(/33 .2* A2/;* -/&. /, 6&!;
W -0. " :& ;

2&4;&3 /(23*4!&3 f , (*313 !4
3<V3 &707!;/, (!3./.; &41 &-/04.(5F
6&4 &41 ,(!*41 /, 2 72(&3.03 *
,;/0(!32*1 &</0. ? (*A&3 & =*(5
7(/;!,!- A(!.*(/4 72!;/3/725 7253!-3 &41
2!3./(5 4;5 ,(&>6*4.3 /, .2*3* A/(D3
(*6&!4 * A&3 &;3/ .2* &0.2/(/, &
-2(/4!-;* /, 2!3 4&.!=* -!.5 *4.!.;*1 +
, : " 9 2!3 !3 3077/3*1 ./
2&=* <**4 /4* /, .2* 7(!4-!7&; &0.2/(!.!*3
,/;;/A*1 !4 .2* , "$(# [
f g

2B11*3 (**D *;*>!&- 7/*./, .2*
;*0&41(!4*7*(!/1 *-*;*<(&.*1 !4*(/.!-
;>!*3 .2* ;/=*3 /, <*&0.!,0;</53 -/4F
3!1*(&<;* ,(&>6*4. (*6&!4!4> 1*3-(!<*3 .2*
;/=* /, (72*03 ,/(&;&!3 .2* <*&0.!,0;
3/4 /, (&3B&41 2!3 1*&.2 *430!4> .2*(*F
,(/6 2* ;&4>0&>*!3 3!67;* &41 37!(!.*1
&41 .2* =*(3!,!-&.!/4 6*;/1!/03

2&4.D303 1

2D(.(D 2* :0!=*(# /A3 9

2D(13 2* ;!>2.2/03* /4 .2* *&3.*(4
3066!./, .2* 36&;;!3;&41 /, .2* 3&6*
4&6* !4 ,(/4./, .2* 2&(</0(/, ;*O&41(!&
. A&3 &./A*(/, A2!.* 6&(<;* <0!;.
,/(./;*65 2;;&1*;7203 <5 /3.(&.03 /,
4!103 !4 @UN (&./ &-/3./, RNN 3!;=*(
.&;*4.3 8E$?N NNN9 &41 &--/04.*1 <5 .2*
&4-!*4.3 /4* /, .2* A/41*(3 /, .2* A/(;1
./ (/3* 75(&61!&;;5 !4 & 406<*(/, 1*F
-(*&3!4> 3./(!*3 /, 1!,,*(*4. ,/(63 8.2*
;/A*3.3:0&(* .2* 4*0./-.&>/4&; .2* .2!(1
-!(-0;&(9 .A&3 &1/(4*1 A!.2 >&;;*(!*3
&41 7!;;&(3 ./ & -/43!1*(&<;* 2*!>2.

/3*7203 5 . C 3&53 .2&. .2*
./A* (, 2&3&*;! 4* (03&;*6 A2!-2 A&3 4s
-0<!.3 8/(&</0. $ V ,**.9 !4 2*!>2. A&3 &</0.
.2* 3&6* 2*!>2. &3 .2* 2&(/3 2!3 !3 60-2
6 /(* ;!D*;5 ./ <*&-/((*-. *3.!6&.*.2&4 .2&. 7,
1(!3 A2/6&D*3 !. N? 1: /(&<K6 .' $WR ? ,** .
* :0!=&;*4. ./ .2(** 7&;63 #$ " (M
A(!..*4 !4 6<!/ $$V K&. .(&43 $UT? 7 RCT9
/(.2&. /, . 72&403 /, 5Q&4.!06 8 + 18a/39
A2/ 6&D*3 !. N? 1: /(&<K6 .' $WR ? ,** .
8 2*3* (*,*(*4-*3 &(* 10* ./ (/, 60;*./49

A&3 3.!;; 3.&41!4> !4 >(*&. 7&(. &</0. $ZNN 4 ;&.*(.!6*3 &;; ;!>2.2/03*3 A*(* -&;;*1 &,..*(!. &41 ;&(>* 406<*(3 /, .2*3* A*(* <0!;. <5 .2* /6&43 (/041 .&;5 &41 /4 &;; .2* -/&3.3 /, .2* *67!(* 2*./A*(&. &=*44&&77(/&-2*1 .2* ;*OF &41(!&4 !4 6&>4!,!-*4-* !>2."32!73 A*(* &;3/ 03*1 <5 .2* &4-!*4.3

2J3;3 2* .*(6 !4 ..!- ;&A ,/(&4 !4,/(6&.!/4 &>&!43. 3*-(*. -(!6*3 30-2 &3 -/4.(&=*4.!/4 /, (*>0;&.!/43 (*;&.!4> ./ -03./63 .(&1* /(6!4!4> !;;*>&; /--07&F .!/4 /, -/6 6/4 (!>2.3 ,*;;!4> /, .2* /;!=* .(**3 3&-(*1 ./ .2*4* 1!32/4*3. &16!4!3F .(&.!/4 /, A&(13 *3.&.*3 &41 : (" 2* !4,/(6*((*-*!=*1 & 7/(.!/4 /, .2* ,!4* &3 (*A&(1

2*>*03 ^!4> /, 3/72!3 !4 (-&1!& 3/4 /, ;72*03 &41<(/.2*(/, 2<(/4*03 ,.*(!410-!4> 2!3 3/43 > 4/(&41 (4 ,!3 8/((!/4 &41 *6*40 9 ./ D!;; ;-6&*/4 .2* ,!(3. 203<&41 /, 2!3 1&0>2.*((3;42* /(;72*3;</*& & 2/ &41 .2*5 A*(* &;; 60(1*(*1<5.2* 3/43 /, ;/63*/4 # (

2?(?-(C.*R ,.*((.!403 07<;!3 &41 (!3. 72 4*3 /, A2/6 2* &3 &4 /;1*(-/4.*67/(&(5 .2* 6/3. *6!4*4. A(!.*(/, .2* ;1 ..!- -/6*15 * A&3 ,&6*1 &6/4> .2* &4-!*4.3 ,/(2!3 A*&;.2 /, !4=*4F .!/4 &41 ,/(.2* 70(!.5 /, 2!3 ..!- (**D * 2&=* .2* .!.;*3 /, ,!,..**4 /, 2!3 -/6*1!*3 &41 & ,*A ,(&>6*4.3 /, 2!3 7;&53

2?(?-51*3 8$9 (**D 72!;/3/72*(/, .2* !3;* /, B(<3 &</0. ?NN"VVN ' * 3&!1 ./ 2&=* <**4 .2* ,!(3. A(!.*(/, 7(/3* * A(/.* !4 .2* /4!- 1!&;*-. /, .2* /(!>!4 /, .2* A/(;1 &41 .2* >/13 # 1 "? &41 (1 " 2* 7/*.!- *;*6*4. 3**63 ./ 2&=* 2*;1 & 7(*1/6!4&4. 7;&-* !4 2!3 7(/3* *!3 &;3/3&!1 ./ 2&=* <**4 .2* ,!(3. ./ 6&!4F .&!4 .2* 1/-.(!4* /, .2* .(&436!>(&.!/4 /, 3/0;3 A2!-2 2!3 707!; 5.2&>/(&3 </(((/A*1 ,(/6 2!6

>GH $1$1'&)

6&!* 2* ,;&. 1(!4D!4>"/47 /, .2* (**D3 # 1

2!1!&3 8 (,(L 2* ,&6/03 (**D &(.!3. < /6 &</0. VNN ' &. .2*43 707!;/, > ; 1&3 &41 *6!4*4. &3 &(-2!.*-. <(/4#* ,/041*(3-0;7./(&41 7&!4.*(!3 >(*&. 7/A*(3 A*(* 1!37;&5*1 !4 .2* <0!;1F !4>3 *(*-.*1 041*(.2* &16!4!3.(&.!/4 /, 2!3 !4.!6&.* ,(!*41 *(!-;*3 /4 .2* -(<7<;!3 !. .2*43 &41 &. ;567!& A2*(* 2* A&3 -/66!33!/4*1 ./ *0*-0.* .2* 3.&.0* /, L*03 ,/(.2* .*67;*.2*(*

*.0(4!4> ./ .2*43 !4 C @ 2* &3 !--03*1 <5 !4.(!>0*(3 &>&!43. *(!-;*3 /, 6!3&77(/7(!&.!4> .2* >/;1 3077;!*1 2!6 ,/(.2* 1(&7*(5 /, .2*4*3 3.&.0* !4 .2* &(" .2<4/4 (/6 .2!3 2* -/0;1 (*&1!;5-;*&(2!63*;, 2&=!4> 3/ -/4.(!=*1 .2* 1(&7*(5 .2&.!.-/0;1 *&3!;5<* .&D*4 /,!,&41 A*!>2*1 f !4. , $g 0. <*!4> &,.*(A&(13 &--03*1 /, !67!*.5 /4 .2* >(/041 .2&. 2*

!>0(* .*&1!.!/4&;;5 1*4.!,!*1 &3 8 . & >,/(1 2!*;1 (!.!32 03*00*9 2!1!&3 A&3 /77(*33*1 A!.2 *4=5 <5 (*&3/4 /, .2* (*4/ .4 /, 2!3 A/(D3 &41 2B15 <*-&43* !4 .2* <&.,*), .2* 6&0/43 A2!-2 A&3 (*7(*3*4.*1 /4 .2* 32!*;1 .2* >/11*33 2* <&1 !4!(/14-*1 &;!D*4*33 /, 2!63*;, &3 & <&;1 /;1 6&4 </;1!4> 07&>(B&.3./4* A!.2 </.2 2&413 ""

2&1 !4.(/10-*1 7/(.(&!.3 /, 2!63*;, &41 *(!-;*3 /4 .2* >/11*33 32!*;1 2* A&3 .2(/A4 !4./7(!3/4 2*(* 2* 1!*1 /, &4 !;;F 4*33 !4 .2* 3&6* 5*&(# " 6/4> &;, 2!3 A/(D3 .2* ,/(*6/3.(&4D A&3 .&D*4 &--/(1F !4> ./ .2* .*3.!6/45 /, &4.!:0!.5 <5 .2* 3.&.0* /, L*03 &. ;567!& &41 .2(**3.&.0*3 /, .2*4* /4 .2* -(/7/;!3 &. .2*43 Q .2* 3.&.0* !4 .2* &(.2*4/4 -/43.(0-.*1 ;!D* .2* L*03 /, !=/(5 &41 >/;1 &41 .A/ /.2*(3 .2*4* (6 -2 3 &41 .2* H *6 4!&4 .2*4* ! /, <(/4Q*

2*3* A/(D3 8,/(A2!-2 " 4) 2&=* 7*(!32*1 20. /, .2* 6&(<;* 3-0;7.0(*3 /, .2* &(.2*4/4 # A2!-2 A*(* 7(/<&<;5-/43.(0-.*1,(/6 2!3 1*3!>43 &41-*(.&!4;5 041*(2!3 1!(*-.!/4 .2*>(*&.*. 7&(. 3.!;; (*6&!43 /3. /, .2*6 &(* !4 .2* (!.!32 03*06 2*5 ,0;;5 30<3.&4F .!&.* .2* K01>6*4. /, &4.!:0!.5 A2!-2 ;//D*1 /4 2!6 &3 .2* (*7(*3*4.&.!=* /, &(.!3.!- 7*(,*-.!/4 &3 .2* /4* 6&4 A2/ !4 2!3 &(. -/6<!4*1 7*(,*-. 30<;!6!.5 A!.2 7*(,*-. <*&0.5 . A&3 3&!1 /, 2!6 .2&. 2* &;/4* 2&1 3**4 .2* *O&-. !6&>* /, .2* >/13 &41 (*=*&;*1!. ./ 6*4 * ,!O*1 ,/(*=*(.2* !1*&; .57*3 /, L*43 &41 /, .2*4* .2* >/13 A2/ !4 .2* 37!(!.0&; 1!>4!.5 /, .2*!(&..(!<0.*3 &(* ,/(*6/3. /, &; .2* 1!=!4!.!*3 /, (**-*

2!1!.!J 8 (,($*

2! 6,!4 (**D 7/*./, .2* *A ..!- -/6*15 /, <;! !4 !;!-!& /(/, 5(&-03* </(4 &</0. ?@ / * -&6* *&(;5 ./ .2*43 &41 ,!(3. &77*&(*1 &3 &4 &0.2/(!4 N * 603. 2&=* *4K/5*1 (*6&(D&<;*

7/70;&(!.5 ,/(2* (*7*&.*1;5 GA/4 =!-./(!*3 /=*(2!3 5/04>*(-/4.*67/(&(5 &41 (6 ; *4&41*('A2/3*1*;!-&.* A!.'A&3&77&(*4.;5 ;*33./ .2* .&3.* /, .2* .2*4!&43/, .2* .!6* .2&4 2!;*6/43 36&(. -/6*15 /' ;&.*(.!6*3 2!3 30--*33*3 /=*(*4&41*(A*(* 3/ 04!4.*;;!>!<;* .2&. .2*5 A*(* &3-(!<*1 ./ .2* !4,;0*4-* /, 6&;!-* &41 !4.(!>0* 0-*7.'& 32/(. 3/K/0(4 !4 >57. A!.2 D!4> ./;*65 2!;&1*;7203 2* 7&33*1 2!3 ;!,* &. .2*43 * .2*(* 1!*1 4*&(;5 & 2041(*1 5*&(3 /;1 <0. A!.2 6*4.&; =!>/0(04!67&!(*1 !4 @?@ &--/(1!4> ./ .2* 3./(5 &. .2* 6/6*4. /, 2!3 <*!4> -(/A4*1 /4 .2* 3.&>* , 2!3 4!4*.5"3*=*4 A/(D3 ,!,.5"3*=*4 &(* D4/A4 ./ 03 <5 .!.;*3 &41 ,(&>6*4.3 &41 .A/ &(* 7(*3*(=*1 !4 .2* &.!4 =*(3!/4 /, ;&0.03 # &41 + "

2!;*6/4 &41 &0-!3 4 /;1 6&((!*1 -/07;* !4 2(5>!& ,&6*1 !4 &4.!:0!.5 ,/(.2*!(.(0* ;/=* 2*4 L*03 &41 *(6 ` A*(* A&41*(!4> .2(/0>2 .2* -/04.(5 !4 206&4 ,/(6 &41 ,/041 4/ 32*;.*(A!.2 .2* (!-2*(!42&<!.&4.3 .2* &>*1 7&!((*-*!=*1 .2*6 2/37!.&<;5 2*>/13 .2*(*,/(* A2!;* 1*3.(/5!4>&;; .2* (*3./, .2* 4*!>2</0(2//1 G<5 ,;//13!4 704!32 6*4.,/(.2* !42/37!.&<;* .(*&.6*4. .2*5 2&1 6*. A!.2 -2&4>*1 .2*!4 6!3*(&<;* -/..&>* !4./ &6&>4!,!-*4. .*67;* *(* .2* /A/2*;1 .2* 7(!*3.;5 /,,!-* ,/(.2* (*3. /, .2*!(;!,* &41 ,!4&;;5 /4 .2*!(7(&5*(.2&. .2*5 6!>2. 4/. <* 3*7&(&.*1 <5 1*&.2 A*(* </.2&. .2* 3&6* 6/6*4. -2&4>*1 !4./ .(**3 f =!1 =!!! ?$$"U@Cg

2;;*.&3 (**D >(&6 6&(!&4&41 7/*. / .2* !3;&41 /, /3 * ;!=*1 !4 .2* 3*-/41 2&; /, .2* C.2 -*4.0(5 ;&..*(;5 &3 .0./(./ .;*65 8 2!;&1*;7203 !4 ;*0&41(!& *3!1*3 *7!-3 2* -/67/3*1 *;*>!*3 /4 2! <*;/=*1 &..!3 A2!-2 A*(* 2!>2;5 7(!Q*1 &. ;*0&41(!& &41 /6* &41 A*(* !6!.&.*1 <5 (7*(.!03 f!= $ $g * 7/33*33 /4;5 3-&4.5 ,(&>6*4.3 /, .2*3* *;*>!*3

2;;!77;1*3 (**D A(!.*(/, .2* *A /6*15 &</0. NN " & ,(!*41 /, D!4> 53 6 -203 /, 2(&-* * !3 3&!1 ./ 2&=* 1!*1 /, K/5 &. A!44!4> &1(&6&.!-7(!Q* , .2* ,/(.5",/0(7;&53 &..(!<0.*1 ./ 2!6 /4;5 ,(&>6*4.3 30(=!=*

2;;!3-43 (**D.(&>*1!&4 /, /(-5(& !4 .2* ,!(3.2&;, /, .2* (1 -*4.0(5 # 2* A&3 7(!*3. /, !/45303 !4 ;*0&41(!& &41 &3 30-2 3./1 &. .2* 2*&1 /, .2* !/453!&- >0!;1 /, &-./(3 !4 .2&.-!.5 * A&3 /4* /, .2* H ;*!&1!& /, ;*0&41(!&4 .(&>!-7/*.3 f !3 7/(.(&!. !3 7(*3*(=*1 !4 &(*;!*, !4 .2* &.*(&4 03*06 -0. 041*(*#6 [

2;;!3.43 (**D 2!3./(!&4 /, 5(&-03* </(4 &</0. C N * *4-/0(&>*1.2* *;1* " !<453!03 <5 &1=!-* &41 &33!3.&4-* !4 3*-0(F !4> &41 6&!4.&!4!4> .2* 7/3!.!/4/, 1*37/. !4 2!3 4&.!=* 3.&.* <0. A&3 2!63*;, <&4!32*1 <5 !/453!03 !4 R? &41 ;!=*1 &(;/4> A2!;* & 1(!& !4 7!(03 <03!*1 A!.2 2!3./(!&; 3.01!*3 *-&;;*1 <5 !/453!03 .2* 5/04>*(2* -/04.*(&-.*1 .2* 3&;0.&(5 !4,;0*4-* /, !/4 &41 ;&./ &. .2&. .5(&4.3 -/0(. &41 </0>2. &</0. .2* <&4!32 6*4./, </.2 3 -/6 6&41*(/, .2* ,;** &>&!43. !/4 &41 .2* (*=/;.*1 5(&-03&43 2* ;/3. &4&=&; <&..;* &41 !4 -/43*:0*4-* *!.2*(-/6 6!..*1 30!-!1* /(A&3 -(0*;;5 60(1*(*1 <5 .2* &4>(5 7/70;&-* 8 V?9 *, ;, &4 2!3./(!-&; A/(D <*>04 !4 2!3 *0!;* -&;;*1 & 2!3./(5 /, !-!;5 !4 .2!(.**4 </!D3 //D3 !"=!! 1*&;. A!.2 .2* *=*4.3 /, .2* *&(;!*3. .!6*3 ./ .2* -&7.0(* /, >(!>*4.06 <5 .2* &("n .2&>!4!&43 !4 CN?" =!!!"0! A!.2 .2* (0;* /, .2* *;1*(!/453!03 0!! &41 0!!! A!.2 .2&. /, .2* 5/04>*(2* ;&3. 7/(.!/4 A2!-2 (*6&!4*1 !4-/67;*.* /A!4> ./ 2!3 1*&.2 A&3 ,!4!32*1 <5 2!3 -/04.(56&4 .2&4&3 4;5 04!67/(.&4., (&>6*4.3 /, 2!3 2&=* 30(=!=*1 --/(1!4> ./ .2* K01>6*4./, .2* &4-!*4.3 2* !;4!.&.*1 20-51!1*3 3/6*A2&. 0430--*33,0;;5 &41 <*.(&5*1 !4 2!3 A/(D .2* /4"3!1*1 &..!.01* 4&.0(&; ./ 2!3 7/;!F .!-&; %=!*A3 f ;0.&(-2 5 " ? !/453!03 &;!- " , Vg

2!;/ 8 (, (" 8$9 W+(* .2* 3/4 /, 4. 7&.*(*,;/0(!32*1 !4 .2* .!6* /, ;*O&41*(.2* (*&. 6/4> 2!3 A/(D3 A&3 .2* 3.&.0* /, *723*3.;/4 &41 .2&. /, L*03 0(;/3 &. .2* *4.(&4-* /, .2* /37/(03 8 !- = ! $@T9 2* 1*1!-&./(5 =*(3*3 !43-(!<*1 /4 .2* 7*1*3.&; /, .2* ;&..*(&(* 4/A!4 .2* (!.!32 03*06 8:0/.*1 /4 7 CN /, *6 ; " *1 &4153 9 ;!45 8OOO!= T$9 6*4.!/43 2!6 &3 /4* /, .2* 3-0;7./(3 A2/ 6&1* (E V " [

8@9 W+((" " (A2/ <0!;. ,/(*6*.(!03 2&;*(*03 &</0. $R " .2* 7/(.!-/ ./ .2* >(*&. .*67;* &. ;*03!3 . 2&1 $@ /(!-/;06 43 !4 ,(/4. &41 !.3 1!6*43!/43 A*(* $R ,**.<5 UW ,**.83** 7;&4 /4 7 @$$9 41*(.2* &1 6!4!3.(&./4 "R /(&(3*4&; &. L?& !4 .2* *!(3*,!3 -/4.&!4!4> .&-D;* *.- ,/(CNN 32!73 8 ;!45 > =!! $@V9 .' A&3 1*3.(/5*1 <5 0;;& 8 ;0.&(-2 $C9 <0. &77&(*4.;5(*<0!;. 3!4-* !. !3 1*3-(!<*1 <5 &; (03 &O!6 03 8=!!! $@ @9 &3 3.! *0!3.!4> # ! - 5 ! ?@ &41 .(&</ 7 TV 4 !43-(!7.!/4 70<;!32*1 !4 $RR@ 7 V$ &41 !4

%.2*' $ ' '" " ' ' !!' &/ ' $NVC' -/4.&!43' .2*' -/4.(&-.' ,/ (' .2*' A/ (D' A!.2' ,0 ;;' 1*.&!;3' ,' !.3' 3.(0-.0(*' &41' ,!..!4>3 g 8 9' ' :Q " *' &' -*;*<(&.*1' 6*-2&F 4!-!&4 ' *' A(/.*' !4' .2*' @41' -*4.0(5' (' &' A/ (D' /4' 6*-2&4!-3' /,' A2!-2' /4;5' /7*' </ /D' /4' .2*' -/43.(0-.!/4' /,' *4>!4*3' /,' A&(' &41' 7/(.!/43' /,' .A/' /.2*(3' /4' 3!*>*"A&(,&(*' &(*' *0.&4.

8C9' f /' ' ; ' &4' -&1*6!-' 72!;/F 3/72*(' &' 707!;' /,' ;; 6 -203' *' &6*' ./' /6*' !4' RR' - ' <*!4>' /4*' /,' &' 406<*(' /,' *6!4*4.' (**D3' A2/',;*1',(/6' .2*43' /4' .2*' &77(/&-2' /,' !.3' 3!*>*' 10(!4>' .2*' !.2(!1&.!-' A&(' *' A&3' &' 6&4' /,' =*(3&.!;*' >*4!03' &41' &' 7*(,*-.' 6&3.,*(' /,' .2*' .2*/(5' &41' 7(&-.!-*' /,' /(&./(5' !-*(/' 2&1' 3-&(-*;5' 2*&(1' 2!6' <*,/(*' &;;' 2!3' !4-;!4&.!/4' ,/(' 7!-0(*&4!36' A&3' 3A*7.',/6' 2!3' 6!41' &41' 2*' 30((*41*(*1' 2!63*;,' A2/;;5' ./' .2*' <(!;F ;!&4.' -&1*6!-' & Q ' ~' N?" -7' 5 ' > ' 3C ' !' ` ~' $U $$ " + ' 5 ' !!' ` ~' T' @?9' 4*' /,' 2!3' A/(D3' .A!-*' 6*4.!/4*1' .2/0>2' 4/.' <5' &45' 1*,!4!.*' .!.;*' # ' !' $ ' !!' $$9' 3077;!*1' !-*(/' A!.2' 2!3' 2!3./(!-' &--/04./,' .2*' *A' -&1*65' 8 !-*(/3' ' Y1' *!1' 77' @' V@9 g

8?9' +(' . @' /6' /,' &' 7(!*3.;5',&6!;5' 2!!/-;*3 &.' ;*0&41(!&' &</0.' @V - ' 2*' -&(*,0;;5' 3.01!*1' .2*' 1!,,*(*4.' <(&4-2*3' /,' (**D' -0;F .0(*' &41' !4' 7&(.!-0;&('&-:0!(*1' &D4/A;*1>*' /,' .2*' ;&./4!-' 72!;/3/725' A2!;*' !4' 4/' A&5' &<&41/4!4>' .2*' 3.015' /,' .2*' -(!7.0(*3' /(' .2*' -(**1' /,' 2!3' 4&.!/4' 4' T' " ' 2*' A*4.' ./' /6*' &3' &4' *6!33&(5' ./' .2*' *67*(/(' % &;>,!;&!4'.2*!4.*(*3.'/,' 2!3',*;;/A'-/04.(5F 6*4' A2/3*'(*;!>!/03',**;!4>3' A*(*' /,,*41*1' <5' &' 1*-(**' /(1*(!4>' .2*6' ./' 7;&-*' .2*' 3.&.0*' /,' .2*' 1*!,!*1' *67*(/(' !4' .2*!(' 354&>/>0*3' 2!3' *6<&335' A2!-2' ;*1' ./' 4/' (*30;.' !3' 1*3-(!<*1' <5' 2!6' !4' &' A/(D' A2!-2' !3' 3.!;;' *0.&4.' .2/0>2' !4' &4' !4-/6F 7;*.*',/(6

2!;/' !3' .2*' -2!*,' (*7(*3*4.&.!=*' /,' .2*' (**-*" 01&!-' 72!;/3/725' *' A(/.*' 406*(/03' (**D' A/(D3' !4' &' 3.5;*' 6/1*;;*1' *4' .2&./,' ;&./' 2*3*' &(*' (*6&(D&<;*',/(' 6/(&;' *&(4*3.4*33' 7&33!/4&.*' *4.203!&36' &41' =!>/0(' /,' .2/0>2.' 2*5' !4-;01*' &;;*F >/(!-&;' *07/3!.!/43' /,' 7/(.!/43' /,' .2*' -(!7F .0(*3' &3' A*;;' &3' /(D3' /,' *.2!-&;' 2!3./(!-&;' *,' 7/;!.!-&;' 70(7/(.' *=*(&;' /,' 2!3' A/(D3' /4;5' 30(=!=*' !4' (6*4!&4' =*(3!/43' !3' 72!;/3/725' *37*-!&;;5' 2!3' .2*/;/>5' !3' &4' *41*&=/0(' ./' (*-/4-!;*' ;&./4!36' A!.2' 01&!36

8?9' W, (' : ' /(' *(*44!03' 5<;!03' ' /6&4' >(&6 6&(!&4' </(4' &.' 5<;03' !4' 2/*4!-!&' !3' ;!,*' *0.*41*1' ,(/6' &</0.

.2*' .!6*' /,' *(/' ./' .2&.' /,' &1(!&4' -/43!1*(&<;*' ,(&>6*4.' /,' 2!3' H' .(&43;&.!/4' I' /,' .2*' &4-!*4.' 2/*4!-!&4' A(!.*(' &4-2,!" 4!&.2/4' !3' 7(*3*(=*1" !4' .2*' ,!(3.' </D' /,' .2*' , ' 9 "1 ' /,' 03 <; g

2!;1-2?63' ' (**D' 2!3./(!&4' ;!=!4>' &.' .2*43' <*.A**4' N?' &41' @?N' 3' &4' 07F 2/;1*(' /,' 4&.!/4&;' ;!<*(.5' 2*' A&3' &6/4>' .2*' <!..*(*3.'/77/4*4.3' /,' *6*.(!03' 1;!/(-*.*3' &41' /,' 2!3' 3/4' 4. > 403' 4&.&3' A2/' 70.' 2!6' ./' 1*&.2' &,.*(' .2*' -/4:0*3.' /,' .2*43' ' 2!3' /(D3' .2*' (' A&3' &' 2!3./(5' /,' .2*43' ,(/6' .2*' *&(;!*3.' .!6*3' ./' @?@' ' !4' 3*=*4.**4' <//D3' . &3' 2!>2;5' *3.**6*1' &41' /,.*4' :0/.*1',/(' !.3' A*&;.2' /,',&-.3' &41' .2/(/0>24*33' /,' !4=*3.!>&.!/4' *37*-!&;;5' &3' (*>&(13' -2(/4/;/>5' *' 3.!;;' 7/33*33' &' -/43!1*(&<;*' 406<*(' /,' ,(&>6*4.3

2;; ;*3' ' (**D' .(&>*1!&4' /4' /,' 3-25;03' 3!3.*(' *' A(/.*' &' 2041(*1' 7;&53' !4' .2*' 6&44*(' /,' ! 3-25;03' &41' A/4' .2*' 7(!Q*' &>&!43.' /72/-;*3' ' +: " " ' 4;5' 3-&4.5',(&>6*4.3' /,' 2!3' 7;&53' (*6&!4' 2*' 1(&6&' A&3' &;3/' -0;.!=&.*1' <5' 2!3' 3/43' /(3!603' &41' ;&4.2!03' <5' /(3!603' 3/4' 3.51&6&3' 8&</0.' TT' □ !% &41' &>&!4' <5' .2*' 3/43' /,' .2*' ;&..*(' 3.51&6&3' &41'

2;;/-.*.*3' 2*' 3/4' /,' /*&3' D!4>' /,' .2*' &;!&43' !4' 8 .&' *' !42*(!.*1' .2*' </A' &41' &((/A3' <,' *(&-;*' ' & ' *' A&3' ;*&1*(' /,' 3*=*4' 32!73' !4' .2*' *07*1!.!/4' &>&!43.' (/5' <0.' /4' .2*' A&5' /0.' A&3' <!..*4' <5' &' 34&D*' &.' *64<3' /(' .2*' 36&;' !3;&41' /,' 2(53*' 4*&(' *64/3' &41' /4' &--/04.' /,' .2*' !4./;*(&<;*' 3.*4-2' -&03*1' <5' .2*' A/041' A&3' &<&41/4*1' &.' *64/3' /4' .2*' &1=!-*' /,' 1533*03' *(*' !4' 2!3' 3!-D4*33' 2*' 1(&>>*1' /0.' &' 6!3*(&<;*' ;!,*' .!;;' .2*' .*4.2' 5*&(' /,.2*' A&(' 2*4' 2/A*=*(' /4' &--/04.' /,' Z;*403' 7(/72*-5' .2&.' (/5' -/0;1' /4;5' <*' -/4:0*(*1' <5' .2*' &((/A3' /,' *(&-;*3' 1533*03' &41' ;?6*1`3' A*4.' ./' ,*.-2' 2!6' &41' 2*' A&3' 2*&;*1' <5' -2&/4' ,*(' 2*' 2&1' 3;&!4' &(!3' (/5' A&3' -/4:0*(*1' *' A&3' /4*' /,' .2*' 2*(/*3' A2/' -&6*' 3&,*' 2/6*' &>&!4' f 2*' 3./(5' /,' 2!;/-.*.*3' A&3' 1(&6&.!Q*1' <5' K 3-25;03' &41' 0(!7!1*3' .' (' C $9' &3' A*;;' &3' <5' /72/-;*3' 8CNT9' .' !3' &;3/' .2*' .2*6*' /,' 406*(/03' 6/406*4.3' /,' &4-!*4.' &(.' ** *<< 3' !4.(/10-.!/4' ./' /72' , (' 7' OOO=!! g

2!;11>603' ' (**D' 72!;/3/72*(' /,' .2*' gB!-0(*&4' 3-2//;' /,' 1 (& !4' &;*3.!4*' *' A&3' &' -/4.*67/(&(5' /,' !-*(/' A2/' 7(&!3*3' 2!3' ;*&(4!4>' &41' &;3/' 2!3' .&3.*' &3' &' 7/*.' W ' A " ' !!' $$T*' "' , " ' ?R' UNg' *' 2&=*' .2!(.5",/0(' *7!>(&63' <5' 2!6' -2!*,;5' /4' &6&./(5' &41' !41*;!-&.*' 30<K*-.3'

&41' -/43!1*(&<;*' ,(&>6*4.3' /,' &'406<*(' /,' 7(/3*' A(!.!4>3' 8/4' 603!-' (2*./(!-' 35;;/F >!3 6 3' =!-*3' &41' =!(.0*3' 7!*.5' &4>*(' *.-9' A2!-2' 2&=*' -/6*' ./';!>2.' &6/4>'.2*' *(-0"F ;&4*&4' :

;1!&&3' (**D' 72!;/3/72*(' &'707!;' /,' 5.2 > (&3' *' A&3' .2*' ,!(3.' ./ -/66!.' ./' A(!.!4>' .2*' 1/-.(!4*3' /,' .2*' 5.2&>/(*&4' 3-2//;' *' A(/.*' !4' /(!-' (**D' 4;5'&',*A',(&>6*4.3' /,' 2!3' A(!."F !4>'(*6&!4

2!;16* ' ' (

2!;/3/725' 8 9' @ ' *'

2*',!(3.'<*>!44!4>3' /,' 72!;/3/725'!4' (**-*' -&6*',(/6'.2*';/4!&43' /,' 3!&" &41'!.'!3'!4' &>(**6*4.'A!.2'.2*'-2&(&-.*(' /,'.2&.'7*/7;*' 4&.0(&;;5'!4-;!4*1' ./' .2*' 72*4/6*4&;' /(' %3*430&;!3.' =!*A' .2&.' A2&.' .2*' ' " "' 72!;/3/72*(3' 3/0>2.' A&3' .2*' 6&.*(!&;' 7(!4F -!7;*' /,' .2!4>3' &41' .2*' 6/1*' /,' .2*!(' /(!>!4' &41' 1!3&77*&(&4-*' $ ' /,' !; .03' 8&</0.' ?CN' 9' !3' (*70.*1' .2*' ,&.2*(' /,' (**D' 72!;/3/725' *' 1*-;&(*1' &.*(' ./' <*' .2*' <&3!3' /,' &;;' .2!4>3' *0.' -&6*' # & ' /,' !;*.03' 8&</0.' ?$$"VCU9' .2*',!(3.' @ ' /4' 72!;/3/725" 2*' &3306*1' &3',!(3.' 7(!4-!7;*' &4' 041*,!4*1' 30<3.&4-*' A!.2/0.' :0&;!.!*3' /0.' /,' A2!-2'.2*'7(!6&(5' &4.!.2*3*3' 2/.' &41' -/;1' 6/!3.' &41' 1(5'<*F -&6*' 1!,!/(*4.!&.*1' !3' -/04.(56&4' &41' 5/04>*(' -/4.*67/(&(5' #A&$ ' ./!D' ,/(' 2!3'7(!4-!7;*' !(*-/4-*!=!4>'!.'&3'6/1!F ,!*1'<5'.2!-D*4!4>' &41' .2!44!4>' !4./',!(*' A!41'-;/013'A&.*('&41'*&(.2' /Z (A ' /,' 72*303'8&</0.'V V"CUV9' &3306*1' &3'.2*' 7(!4-!7;*',/'30<3.&4-*'3*.2*(!&;' !(*' (/6' ,!(*&;'.2!4>3'/(!>!4&.*'&41'(*.0(4'./'!.'&>&!4' <5'&'4*=*("(*3.!4>'7(/-*33'/,' 1*=*;/76*4.' ;;'.2!4>3'.2*(*,/(*'&(*'!4'&'7*(7*.0&;',;00' d 2!;/3/725' &3',!(3.'<(/0>2.'!4./'-/4F 4*0!/4'A!.2'7(&-.!-&;';!,*'<5' , $ ' /,' &6 3'8&</0.'VR@"VNC9',(/6'A2/6'!.' (*-*!=*1'!.3'4&6*'8H'.2*';/=*' /,' A!31/6'!9% *>&(1!4>'.2*'A/(;1'&3'&'7*(,*-.'2&(6/45' 1*7*41*4.'/4'406<*('2*'&!6*1'&.'!410-!4>' 6&4D!41';!D*A!3*'./';*&1'&'2&(6/4!/03';!,*' !3'1/-.(!4*'A&3'&1/7.*1'&41'*0.*41*1'<5' &';&(>*' ,/;;/A!4>'*37*-!&;;5'!4';/A*(' .&;5' 2&.'-/04.(5'A&3'&;3/'.2*'2/6*'/,'.2*' ;*&.!-'1/-.(!4*'/,' 2*' 4*'-&;;*1'&,.*('.2*' ./A4'/,' ;*&'.2*'2*&1:0&(.*(3'/,'.2*'3-2//;' .'A&3',/041*1'<5'].. 1 ' /,' ";"" 72/4'8</6'&</0.'VUN9'.2*',&.2*(' /,'7&4F .2*!36'A2/'1*-;&(*1' /1' ./'<*'.2*'*.*(4&;' !6!.5'7*(6*&.!4>'.2*'04!=*(3*'&41'>/=*(4F !4>'!.'<5'2!3'.2/0>2.' !3'>(*&.'1!3-!7;*' &J A S' /,' \; &' 8</(4' &</0.' V$$9' &;,!! 6*1'.2*'/4*'04-2&4>!4>'*0!3.*4-*'./'<*' &;/4*'.(0*'&41'-&7&<;*'/,'<*!4>'-/4-*!=*1' &41' 60;.!.01*'&41'-2&4>*'./'<*'&4'&77*&("" &4-*'A!.2/0.' (*&;!.5' 2!3' 1/-.(!4*'A&3' 6&!4.&!4*1' 1!&;*-.!-&;;5' <5' 2!3' 5/04>*(' -/04.(56&4' 4' !4'&'7/;*6!-' &>&!43.'.2*' =0;>&(' /7!4!/4' A2!-2'3**3' !4'.2!4>3' 60;.!F .01*' <*-/6!4>' &41' -2&4>*' & 5(' /,' B!>*4.06'8</6' CT@9' &77*&(3'./' 2&=*' <**4' 7&(.;5'!4'&>(**6*4.'A!.2'.2*' ;*&.!-' 3-2//;'7&(.;5'!4'/77/3!.!/4'./'!.' /4'.2*' /4*' 2&41' 6&!4.&!4!4>'.2*' 04-2&4>*&<;*' 4&.0(*' /,'30<3.&4-*" A2!;*'/4'.2*'/.2*('2*'3077/3*3' &'7;0(&;!.5'/,'30-2' 30<3.&4-*3 [./' A!.' .2*' ,/0(' *;*6*4.3' *&(.2' A&.*(' &!(' &41' ,!(*' ' .2*3*' .2*' A/(;1'!3'<0!;' 07'<5'.2*' &>*4-5' /,' .A/'!1*&;'7(!4-!7;*3' &3' 6/.!=*',/(-*3" Q' ;/=*' &3' .2*' -&03*' /,' 04!/4' 2&.*' &3' .2*' -&03*' /,' 3*7&(&.!/4

' /,' ;&Q/6>43*' 8</(4' &</0.' VNN9' &;3/' 6&!4.&!4*1' .2*' *0!3.*4-*' /,' &4' /(1*(!4>' 7(!4-!7;*' &3' A*;;' &3' &' 6&.*(!&;' 30<3.&4-*'&41' A2!;*'(*>&(1!4>'.2*';&..*(' &3' &4'!4,!4!.*' 60;.!.01*',/'!67*(!32&<;*'7(!6&(5' *;*6*4.3' :0&;!.&.!=*;5' 1!3.!4>0!32*1' -/4F -*!=*1'1!=!4*'(*&3/4' &3' /(1*(!4>'.2*'6' *' (*,*((*1' &;' >*4*(&./!/4' &41' 1!3&77*&(&4-*' ./' 6!0.0(*' &41' (*3/;0./!/4' (*37*-.!=*;5' /' 2!6'<*;/4>3' -(*1!.'/,' ,!(3.'*3.&<;!32!4>' 72!;/3/725' &.' .2*43' !4' A2!-2' -!.5' !.' (*&-2*1'!.3' 2!>2*3.' 1*=*;/76*4.' &41' -/4F .!40*1' ./' 2&=*' !.3' 2/6*' ,/(' 5*&(3' A!.2/0.' !4.*(6!33!/4' 2*' ,!(3.'*07;!-!.;5' 6&.*(!&;!3.!-' 353.*6' A&3',/(6*1'<5' & ' ; ' /,' <1*(&'8</(4'&</0.' C?N9' 2!3' A&3'.2*'1/-.(!4*' /,' ./63 [36&;' 7(!6&(5' </1!*3' !4,!4!.*' !4' 406<*('!41!=!3!<;*' &41' !67*(!32&<;*'!:0&;!.&.!=*;5' 3!6!;&('<0.'1!3F .!>0!32*1'<5'.2*'!(' 32&7*3' &;;!4>'*.*(F 4&;;5'.2(/0>2'.2*' !4,!4!.*'=/!1'.2*5'-/;;!1*' &41' 04!.*' .203' >*4*(&.!4>' *0!3.*4-*' &41' ,/(6!4>'/<K*-.3' A2!-2'1!,,*(' !4' &--/(1&4-*' A!.2'.2*' =&(!*.!*3' !4' 406<*(' 3!Q*' 32&7*' &41' &((&4>*6*4.'/,' .2*' &./63' A2!-2'-/6F 7/3*' .2*4!

2**',,/(.3'/,'&;;'.2*3*'*&(;!*('72!;/3/72*(3' 2&1'<**4' 1!(*-.*1' 3/6*A2&.' *0-;03!=*;5' ./' .2*' !4=*3.!>&.!/4' /,' .2*' 0;.!6&.*' <&3!3' &41' *33*4.!&;' 4&.0(*' /,' .2/' *0.*(4&;' A/(;1' *4-*' .2*!(' -/4-*7.!/43' /,' 206&4' D4/AF ;*1>*' &(!3!4>'/0.' /,' .2*!(' .2*/(!*3' &3' ./' .2*' -/43.!.0.!/4' /,' .2!4>3' 2&1' <**4' 4/' ;*33' =&(!/03' 2*' ;*&.!-3' ,/(' *0&67;*' 2&1' <**4' -/67*;;*1' ./' 1*45' .2*' *0!3.*4-*' /,' &45' /<K*-.!=*' .(0.2' 3!4-*' ./' .2*' A/(;1'/,' 3*43*' A!.2'!.3' 60;.!.01*'&41'-2&4>*' .2*5'&;;/A*1' /4;5' &' 72*4/6*4&;' *0!3.*4-*' 2!3' !4-/4F 3!3.*4-5';*1' ./' .2*' 7/3!.!/4' .&D*4' 07' <5' .2*' -;&33' /,' 7*(3/43' D4/A4' &3' $ '8:79' .2&.' &;;' .2/0>2.' (*3.3' 3/;*;5' /4' .2*' &77(*F 2*43!/43' /,' .2*' 3*43*3' &41' 74' 30<K*-.!=*

!67(*33!/4 &41 .2&. .2*(*,/(* A* 2&=* 4/ /.2*(.&41&(1 /, &-.!/4 .2&4 0.!;!.5 ,/(.2* !41!=!10&;

 4*A 7*(!/1 /, 72!;/3/725 /7*43 A!.2 .2* .2*4!&4 $5" A $$8C?T" TT9 !D* .2* /72!3.3 2* (*(*-.*1 *4.!(*;5 .2* 7253!-&; 37*-0;&.!/43 !4 A2!-2 2!3 7(*1*-*33/(3 2&1 !410;>*1 &41 6&1* .2* 30<(*-.!=* .2/0>2.3 &41 /7!4!/43 /, 6*4 2!3 3.&(.!4>7/!4. <0. A2*(*&3 !. A&3 .2* .2/0>2.3 &41 /7!4!/43 / , .2* !41!=!10&; .2&. .2* /72!3.3 ./!D ,/(.2* 3.&41&(1 /-(&.*3 *41*&=/0(*1 ./ *0.(&-. ,(/6 .2* -/66/4 !4.*;;!>*4-* /, 6&4D!41 &4 /<(*-.!=* (0;* /, 7(&-.!-&; ;!,* /(.2!3 70(7/3* 2* *67;/5*1 .2* .A/ ,/(63 /, 72!;/3/72!-&; !4:0!(5 /, A2!-2 2* !3 .2* !4=*4./(!410-.!/4 &41 1*,!4!.!/4 0-2 &3.&41&(1 2* 3&A !4 D4/A;*1>* <5 A2!-2 .*(6 2* 041*(3.//1 .2* -/>4!.!/4 !4 .2/0>2. /, .2* .(0* -/4-*7. /, &4 /<(*-. &41 !1*4.!,!*1 !. A!.2 !(.0*" .2&.!3 ./ 3&5 30-2 &-.!/4 &3 7(/-**13 ,(/6 -;*&(-/>4!.!/4 /, .2* -/4-*7. &77(/7(!&.* ./ .2* -!(-06 3.&4-*3 203 &;.2/0>2 /-(&.*3 1!1 4/. 2!63*;, 30--**1 !4 *3.&<;!32!4> & >*40!4* *.2!-&; 7(!4-!7;* 2* !3 4*=*(.2*;*33 .2* ,/041*(/, .2* .2!-3 &3 2* !3 &;3/ /, 1!&;*-.!- .2* 6*.2/1 /, .2* 2!>2*3. 37*-0;&.!=* .2/0>2. , /-(&.*3 406*(/03 1!3-!7;*3 6&45 *!.2*(&11*1 4/.2!4> ./ 2!3 1/-.(!4* /(1*=*;/7*1 !, !4 & /4*"3!1*1 6&44*(<5 -/4,!4!4> .2*63*;=*3 *0-;03!=*;5 *!.2*(./ 1!&;*-.!-/(./ *.2!-3 203 A2!;* .2* .2*4!&4],!4< -/4.*4.*1 2!63*;,'!4 & 3*(!*3 /, A(!.!4>3 A!.2 *02!<!.!4> .2* 7/(.(&!. /, 2!3 6&3.*(./ .2* <*3. /, 2!3 -/67(*2*43!/4 &41 &11*1 4/.2!4> /(!>!4&; .2* *>&(!&4 3-2//;, /041*1 <5 / .; ,!3 /, *>J(!;* 1*=/. .2*63*;=*3 &;6/3. *4.!(*;5 ./ 1!&;*-.!-!4=*3.!>&.!/4 A2*(*&3 *.2!-3 7(*7/41*(&.*1 </.2 A!.2 .2* 54!-3 &41 B(*4&!-3 &;.2/0>2 .2* 7/3!.!/4 .&D*4 07 <5 .2*3* .A/ 3-2//;3 A&3 !4 1!(*-. &4.!.2*3!3 /(! >3 /, .2*43 .2* ,/041*(/, .2* 54!-3 -/4-*!=*1 .2* 2!>2*3. >//1 ./ <* .2* =!(.0* A2!-2 370(43 *=*(5 *4(/56*4." A2!;*) / , 5(*4* .2* ,/041*(/, .2* 5(*4&!-3 -/4F 3!1*(*1 7;*&30(* ./ <* .2* 3/;* *41 !4 ;!,* &41 (*>&(1*1 =!(.0* &3 &/>//1 /4;5 !4 3/ ,&(&3 !. -/4.(!<0.*1 ./ 7;*&30(* /.2 &37*-.3 /, .2* >*4!03 /, /-(&.*3 *(* ,!(3 04!.*1 !4 ' /, .2*43 8C@R" CR9 A2/ &;3/ -/6<!4*1 A!.2 .2*6 &;; .2* 7(!4-!7;*3 *3.&<;!32*1 <5 *&(;!*(72!;/3/F 72*(3 !4 3/ ,&(&3 .2*5 2&1 <**4 ;*>!.!6&.* &41 1*=*;/7*1 .2* A2/;* /, .2!3 6&.*(!&; !4./ .2* 04!.5 /, &"-/67(*2*43!=* 353.*6 2* >(/041A/(D /, ;&./3 3-2*6* .2/0>2 4/A2*(* *07(*33;5 3.&.*1 <5 2!6 !3 .2* .2(**,/;1 1!=!3!/4 /, 72!;/3/725 !4./ 1!&F ;*-.!- *.2!-3 &41 7253!-3" !.3 -*4.(&; 7/!4. !3 .2* .2*/(5 /, !1*&3 2!3 .2*/(5 !3 &-/6<!4&.!/4 /, .2* ;*&.!-1/-.(!4* /, .2* 4* A!.2 *(&-;!.03 .2*/(5 /, &7*(7*.0&; ,;00 &41 A!.2 .2* /-(&.!- 6*.2/1 /, -/4-*7.3 " 2* 60;.!.01* /, /<(*-.3 /, 3*43* <*!4> !4=/;=*1 !4 7*(F 7*.0&; -2&4>* &(* .2*(*<5 1*7(!=*1 /, &;; >*40!4* *0!3.*4-* 2* /4;5 .(0* <*!4> !4 .2*6 !3 ,/041*1 07/4 .2* !1*&3 .2* *.*(4&; 04-2&4>*&<;* 8!41*7*41*4./, &;; .2&. !3 &--!1*4.&; &41 .2*(*,/(*9 7*(,*-. .57*3 /, A2!-2 .2* 7&(.!-0;&(/<(*-.3 /, 3*43* &(* !67*(,*-. -/7!*3 2* 406<*(/, .2* !1*&3 !3 1*,!4*1 <5 .2* 406<*(/, 04!=*(3&; -/4-*7.3 A2!-2 -&4 <* 1*(!=*1 ,(/6 .2* 7&(.!-0;&(/<(*-.3 /, 3*43* 2* 2!>2*3. !1*&3 .2&. /, .2* //1 A2!-2 !3 .2* 0;.!6&.* <&3 /, .2* (*3. &41 .2* ,!(3. -&03* /, <*!4> &41 D4/A;*1>* 77(*F 2*43!/43 1*(!=*1 ,(/6 .2* !67(*33!/43 /, 3*43* -&4 4*=*(>!=* 03 .2* D4/A;*1>* /, .(0* <*!4>" / , .2* !1*&3 .-&4 /4;5 <* /<.&!4*1 <5 .2* 3/0;3 &-.!=*1.5 A!.2!4 !.3*;, &7&(.,(/6 .2* .(/0<;*3 &41 1!3.0(F <&4-*3 /, 3*43*" .2&. !3 ./ 3&5 <5 .2* *0*(-!3*/, (*&3/4 !&;*-.!- &3 .2* !!!3.(0" 6*4. !4 .2!3 7(/-*33 ;*&1!4> 03 ./ D4/AF ;*1>* /, .2* !1*&3 &41 ,!4&;;5 /, .2* 2!>2*3. !1*& /, .2* //1 !3 .2* ,!(3. /, 3-!*4-*3 " ? ! " 4 7253!-3 ;&./ &12*(*1 8.2/0>2 4/.A!.2/.(!>!4&; 6/1!,!F -&.!/43 ./ .2* =!*A3 /, .2* 5.2&>/(*&43 6&D!4> &.0(* & 2&(6/4!- 04!.5 !4 60;.!F 7;!-!.5 !3 *.2!-3 &(* ,/041*1 .2(/0>2/0. /4 .2* /-(&.!-" A!.2 2!6 .// =!(.0* !3 D4/A;*1>* .2* -/>4!.!/4 /, .2* 307(*6 !1*& /, .2* //1 41 3!4-* !4 .2!3 -/>4!F .!/4 .2* .2(** 7&(.3 /, .2* 3/0; -/>4!.!=* 37!(!.*1 &41 &77*.!.!=* &;; 2&=* .2*!(32&(* A* >* .2* .2(** =!(.0*3 !31/6 /0(&>* &41 *67*(&4-* /(/4.!4*4-* 2* </41 A2!-2 04!.*3 .2* /.2*(=!(.0*3 !3 .2* =!(.0* /, 03.!-* <5 A2!-2 *&-2 3*=*(&; 7&(. /, .2* 3/0; !3 -/4,!4*1 ./ .2* 7*(,/(F 6&4-* /, !.3 7(/7*(,04-.!/4 2* 3-2//; ,/041*1 <5 8 ;&./ -&;;*1 .2* : 8 .2* 4&6* /, .2* >(/=* /, .2* ..!-2*(/ - 1*603 A2*(* 2* 03*1 ./ 1*;!=*(2!3 ;*-.0(*3 -/4.!40*1 ,/(;/4> &,.*(4 (*>&(1 ./ .2* 6&!4 .*41*4-!*3 /, !.3 6*6F <*(3 !. A&3 1!=!1*1 !4 ./ .2* .2(** 7*(!/13 /, .2* & @ : 2* -2!*, 7*(3/4&>*3 !4 .2* ,!(3. /, .2*3* A*($) 83/4 /, ;&./3 3!3.*(9 A2/ 30-F -**1*1 2!6 &3 .2* 2*&1 /, .2* 3-2//;8.!;; T9 &41], -3! 3 /, 2&;-*1 4 8.!;;

$C9 /.2 /, .2* 6 3/0>2. ./ ,03* 5.2&F >/(*&4 37*-0;&.!/43 /4 406<*(A!.2 ;&./ 3 .2*/(5 /, !1*&3 2* .A/ /.2*(-&1*6!*3 A*(* 3.!;; ,0(.2*((*6 /=*1 ,(/6 .2* 37*-!,!-1/-.(!4*3 /, ;&./ # @

2* 6/3. !67/(.&4. &6/4> ;&./ 3 1!3F -!7;*3 !3 /, .&>!(&8 RC" @@9 A2/ 32&(*3 A!.2 2!3 6&3.*(.2* .!.;* /, .2* >(*&.*3. 72!;/3/72*(/, &4.!:0!.5 &. A2*(*&3 ;&./ 2&1 3/0>2. ./ *;0-!1&.* &41 *07;&!4 .2!4>3 ,(/6 .2* 307(&3*430&;3.&41F 7/!4. /, .2* !1*&3 2!3 707!; 7(*,*((*1 ./ 3.&(. ,(/6 .2* ,&-.3 >!=*4 03 <5 *07*(!*4-* 2!;/3/725 ./ 2!6 6*&4. 3-!*4-* &41 !.3 &!6 A&3 .2* (*-/>4!.!/4 /, .2*H A2*(*,/(*I !4 &;; .2!4>3 *4-* 2* *41*&=/0(3 ./ &..&!4 ./ .2* 0;.!6&.* >(/0413 /, .2!4>3 <5 !410-F .!/4 * .2&. !3 ./ 3&5 <5 -/4-;OF 3!/43 ,(/6 & 406<*(/, ,&-.3 ./ & 04!=*(3&; 4 .2* 3*(!*3 /, A/(D3 -/;;*-.*1 041*(.2* 4&6* /, 1 " " (!3./.;* 3*.3 ,/(.2 &;6/3. !4 & ,!4&; ,/(6 .2* ;&A3 <5 A2!-;! .2* 206&4 041*(3.&41!4>* ,!*-.3 -/4-;03!/43 ,(/6 .2* 7&(.!-0;&(./ .2* D4/A;*1>* /, %.2* 04!=*(3&; !D* ;&./ 2* (*-/>4!3*3 .2* .(0* <*!4> /, .2!4>3 !4 .2*!(-/4-*7.3 <0. 1*4!*3 &45 3*7&(&.* *0!3.*4-* /, .2* -/4-*7. &7&(.,(/6 .2* 7&..!-0;&(/<K*-.3 /, 3*43* 2*5 &(* &3 !43*7&(&<;* &3 6&..*(&41 ,/(6 4 .2!3 &4.!.2*3!3 6&..*(&41 ,/(6 (!3./.;* 3**3 .2* ,041&6*4.&; 7(!4F -!7;*3 /, <*!4> &..*(!3 .2* <&3!3 /, &;; .2&. *0!3.3 !. -/67(!3*3 .2* 7/.*4.!&;!.5 /, *=*(5.2!4> <0. /, !.3*;, !3 4/. &-.0&;;5 &45.2!4> 1*.*(6!4&.* .2!4> /4;5 -/6*3 !4./ <*!4> A2*4 .2* 7/.*4.!&;!.5 !4 6&..*(!3 -/4=*(.*1 !4./ &-.0&;!.5 2!3 !3 *,,*-.*1 <5 ,/(6 .2* !1*& *0!3.*4. 4/. &3 /4* /0.F 3!1* .2* 6&45 <0. &3 /4* !4 .2* 6&4K(.2* -/67;*.!/4 /, .2* 7/.*4.!&;!.5 ;&.*4. !4 .2* 6&..*(;.2/0>2 !. 2&3 4/ *0!3.*4-* &7&(. ,(/6 .2* 7&(.!-0;&(3 5*. !4 (&4D &41 *3.!6&.!/4 ,/(6 3.&413 ,!(3. !. !3 /, !.3 /A4 4&.0(* .2* 6/3. D4/A&<;* .2* /4;5 .(0* /<K*-. /, D4/A;*1>* /(6&..*(A!.2/0. &45 ,/(6 -&44/. *0!3. <0. .2* *33*4.!&;1*,!4!.!/43 /, & -/66/4 ,/(6 !4 A2!-2 &(* !4-;01*1 .2* 7&(.!-0;&(/<K*-.3 6&5 <* 3*7&(&.*1 ,(/6 6&..*(% /(6 &41 6&..*(&(* (*;&.!=* .*(63 &41 .2* ;/A*(,/(6 -/43.!.0.*3 .2* 6&..*(/, & 2!>2*(8* B </15 3/0; (*&3/49 2!3 3*(!*3 -0;6!4&.*3 !4 70(* !66&.*(!&; ,/(6 .2* *!.5 .2* /(!>!4 /, &;; 6/.!/4 &41 .2*(*,/(* /, .2* >*4*(&.!/4 /, &-.0&; ,/(6 /0. /, 7/.*4.!&; 6&..*(;;5 6/.!/4 .&D*3 7;&-* !4 37&-* &41 .!6* ,/(37&-* !3 .2* 7/.*4.!&;!.5 .!6* .2* 6*&30(* /, .2* 6/.!/4 !=!4>* <*!4>#& (* .2/3* A2!-2 2&=* !4 .2*6 & 6/=!4> 7(!4-!7;* /(3/0; 4 7;&4.3 .2* ,04-.!/4 /, 3/0; !3 40.(!.!/4 8!4-;01!4> (*7(/10-.!/49 !4 &4!6&;3 40.(!.!/4 &41 3*43&.!/4 !4 6*4 40.(!.!/4 3*43&.!/4 &41 !4.*;*-.0&; &-.!F =!.5 2* 7*(,*-. ,/(6 / , .23 206&4 3/0; !3 (*&3/4 3*7&(&.*1 ,(/6 &;; -/44*0!/4 A!.2 .2* </15 2*4-* ,0; ,!;!4>!.3 &-.!=!.5 A!.2F /0. .2* 2*;7 /, & 45 -/(7/(*&; /(>&4 &41 3/ !67*(!32&<;* 5 (*&3/4 .2* &77(*2*4F 3!/43 A2!-2 &(* ,/(6*1 !4 .2* 3/0; <5 *0.*(4&; 3*43*"!67(*33!/43 &41 6&5<* .(0* /(,&;3* &(* -/4=*(.*1 !4./ D4/A;*1>* /((*&3/4 &;/4* -&4 &..&!4 ./ .(0.2* *!.2*(!4 -/>4!.!/4 /(&-.!/4 6 70;3* ./A&(13 .2* >//1 !3 &7&(./, 206&4 4&.0(* &41 /4 .2!3 !3 ,/041*1 =!(.0* ,/((!3./.;* 1/*3 4/. A!.2 ;&./ (*>&(1=!(.0* &3 D4/A;*1>* 70(* &41 3!67;* <0. &3 ,/041*1 /4 4&.0(* 2&<!. &41 (*&3/4 ,.2* 7&(.!-0;&(=!(.0*3 8/, A2!-2 .2*(* &(* &3 6&45 &3 .2*(* &(* -/4.!4>*4-!*3 !4 ;!,*9 *&-2 !3 .2* &77(*F 2*43!/4 <5 6*&43 /, (*&3/4 /, .2* 7(/7*(6*&4 <*.A**4 .A/ *0.(*6*3 A2!-2 &(* " =!(.0*3 1 /0(&>* !3 .2* 6*&4 <*.A**4 -/A&(1!-* &41 ,//;2&(1!4*33 2* *41 /, 206&4 &-.!=!.5 /(.2* 2!>2*3. >//1 !3 2&77!4*33 /(7*(,*-. &41 (*&3/4&<;* &-.!=!.5 !4 &7*(,*-. ;!,* /.2!3 2/A*=*(*0.*(4&; >//13 &(* 6/(* (;*33 4*-*33&(5 -/41!.!/43 2* ,/;;/A*(3 /, (!3./.;* D4/A4 &3 , . S" /, *3</3) &) /, 2/1*3 $ 5/, &673&-03 *.-9 ./ & >(*&. *0.*4. &<&41/4*1 6*.&F 7253!-&; 37*-0;&.!/4 3/6* !4 ,&=/0(/, 4&.0(&; 3-!*4-* /.2*(3 /, & 6/(* 7/70;&(.(*&.6*4. /, *.2!-3 !4.(/10-!4> 6&45 -2&4>*3 !4./ .2* (!3./.*;!&4 1/-.(!4* !4 & 4&.0(&;!3.!- 1!(*-./!4 (*.0(4 ./ .2* =!*A3 /, .2* ,/041*(,!(3. &77*&(3 &6/4> .2* ;&.*(*(!7&.*.!-3 A2/ 1!1 >//1 3*(=!-* &3 *07/3!./(3 /, (!3./.;* 3 A/(D3 2* .*41*4-5 /, .2* *(!7&.*.!-3-2//; ./ 6&D* 72!;/3/725 .2* *0-;03!=* 7(/7*(.5 /, .2* ;*&(4*1 -;&33 .2*(*<5 1*7(!=!4> !. /, !.3 7/A*(./ <*4*,!. & A!1*(-!(-;* 3//4 7(/F 10-*1 &(*&-.!/4 &41 72!;/3/72*(3 (*.0(4*1 ./ .2*7(&-.!-&;3.&417!4./ /- (&.!-*.2!-3 2* 37*-0;&.!/43 /, .2* ;*&(4*1 A*(* /4;5 &16!..*1 !4 72!;/3/725 A2*(* !66*1!&.*;5 3*(=!-*&<;* ,/(*.2!-3 2* -2!*, -/4F 3!1*(&./4 A&3 2/A ./ 7/70;&(!3*1 /-.(!4*3 &41 ./ 7(/=!1* .2* !41!=!10&; !4 & .!6* /, >*4*(&; -/4,03!/4 &41 1!33/;0./4 A!.2 &,!0*1 6/(&; <&3!3 ,/(7(&-.!-&; ,!; * 0-2 A*(* .2* &!63 /, ,/041*1 &. .2*43 &</0>2. $N <5 4 /, !..;06 &41 <(/0>2./ ,0;;*(353.*6&.!-; ,/(6 <5 2!3 30-F -*33/(3 &3 2*&13 /, .2* 3-2//; " /, 33/3 &41 *37*-!&;;5 ") 7 `V;!

P1!*1' &</0.' @N?9' 2*!(' 1/-.(!4*3' -/4.&!4*1' ;!..;*' .2&.' A&3' 4*A ' 3**D!4>' (&.2*(' ./' >!=*' 7(&-.!-&;' &77;!-&.!/4' ./' .2*' 1/>6&3' A !-2' .2*5' .//D' (*&15"6&1*' ,(/6' 7(*=!/03' 353F .*63' !.2' .2*6' 72!;/3/725' !3' .2*' 3-!*4-*' /,' .2*' 7(!4-!7;*3' /4' A2!-2' .2*' 6/(&;' ;!,*' /0>2.' ./' <*' ,/041*1' 2*' /4;5'&;;/A&<;*' /41*&=/0(' !3' ./A&(13' .2*' &..&!46*4.' /,' D4/A;*1>*' /,' .2!4>3' 206&4' &41' 1!=!4*' !4' /(1*(' ./' (*>0;&.*;!,*' .2*(*<5' 2*' 6*.2/1' ./';*&1' 6*4' ./' .(0*' D4/A;*1>*' !3' 7(/=!1*1' <5' ;/>!-' 7253!-3' *6<(&-*3' .2*' 1/-.(!4*3' &3' ./' .2*' 4&.0(*' &41' /(>&4!Q&.!/4' /,' .2*' 04!=*(3*' A2!;*' *.2!-3' 1(&A3',(/6' .2*6' !.3' //4-;43!/43',/(' 7(&-.!-&;' ;!,*' ;;' D4/AF ;*1>*' /(!>!7&.*3' !4' .2*' (*&;' !67(*33!/43' /,' .2!4>3' /4' .2*' 3*43*3' A2!-2' .2*' 3/0;' <*!4>' 6.' <!(.2' &' ' (*-*!=*3' !4' .2*' ,/(6' /,' 7(*3*4.&.!/43' 2*3*' 7(*3*4.&.!/43' A2*4' -/4,!(6*1' <5' (*7*&.*1' *07*(!*4-*' &(*' 5;;/>!3.!-&;;5' 1*=/;=*1' <5' .2*' 041*(3.&41F !4>' !4./' -/4-*7.3' 2*' .*3.' /,' .2*!(' .(0.2' !3' .2*' -/4=!4-!4>' /(' 7*(30&3!=*' ,/(-*' A!.2' A2!-2' .2*5' !67(*33' .2*63*;=*3' 07/4' .2*' 3/0;' 4'7253!-3' .2*' ,/041&.!/4' /,' .2*' ./!-' "1/-.(!4*' A&3' .2*' 1/>6&' .2&.' &;;' .(0*' <*!4>' !3' -/(7/(*&;' !.2!4' .2*' -/(7/(*&;' .2*5' (*-/>4!3*1' .A/' 7(!4-!7;*3' 6&..*(' &41' ,/(-*' ! *' .2*' 6&.*(!&;' &41' .2*' 1*!.5'7*(6*&.!4>' &41' !4,/(6!4>' !.' ;.!6&.*;5' 2/A*=*(' .2*' .A/' &(*' !1*4.!-&;' 2*(*' !3' 4/.2!4>' !4' .2*' "A/(;1' A!.2' &45' !41*7*41*4.' *0!3.*4-*' &;;' !3' </041' ./>*.2*(' <5' &4' 04&;.*(&<;*' -2&!4' "/,'-&03&.!/4' 2*' -/4-/(1' /,' 206&4' &-.!/4' A!.2' .2*' ;&A' /,' 4&.0(*' /,' .2*' 206&4' A!;;' A!.2' .2*' 1!=!4*' A!;;' /(' ;!,*' &--/(1!4>' ./' 4&.0(*'!3' !(.0*' .2*'-2!*,'>//1' &41' 2!>2*3.' G*41' !4' ;!,*' .' !3' *33*4.!&;;5' /4*' .2*' 7&(.!-0;&(' /(' -&(1!4&;'=!(.0*3' /,' ;&./' <*!4>' 74;5' 1!,,*(*4.' &37*-.3' /,' !.'' !.' !3' -/67;*.*;5' !30,,!-!*4.' ,/(' 2&77!4*33' &41' !4-&7&<;*' /,' &45' 1!,,*(*4-*3' /,' 1*>(**' ;;' >//1' &-.!/43' &(*' &<3/;0.*;5' *:0&;' !4' 6*(!.' &41' 3/' &(*' &;;' <&1' &-.!/43' ;;' .2&.' ;!*3' <*.A**4' =!(.0*' &41' =!-*' !3' 4*!.2*(' >//1' 4/(' <&1'' &.' 6/3.' !.' !3' 1!3.!4>0!32*1' &3' 7(*,*(&<;*' 041*3!(&<;**'/(' &<3/;0.*;5'!41!,,*(*4.' !(.0*' !3',0;;5' 7/33*33*1' /4;5' <5' .2*' A!3*' 6&4' A2/' !3' 4' A&5' !4,*(!/(' !4' A/(.2' ./' L*03' 2*' !3';/(1'/=*(**' 2!3' /A4';!,**' &41' 6&5'*41'!.' <5'2!3' /A4',(**-2/!-**' 4'>*4*(&;'.2*' 7(/F 6!4*4.'-2&(&-.*(!3.!-' /,' ./!-' 72!;/3/725' !3' 6/(&;' 2*(/!36' /,.*4'=*(>!4>' /4' &3-*.!-!36 2*' 3&6*' >/&;' A2!-2' A&3' &!6*1' &.' !4' ./!-!36' A&3' &;3/' &77(/&-2*1' ,(/6' &' 1!&F 6*.(!-&;;5' /77/3!.*' 7/3!./!4' !4' .2*' 353.*6' ,/041*1' &</0.' .2*' &6*' .!6*' <5'$ A() ' /,'.2*' 1*6*' &(>*..03' !4' ..!-&'8 C@"@?R9' "A2/' <(/0>2.' !.' ./' -/67;*.!/4' 2!63*;, 7!-0(*&4!36' ;!D*' ./!-!36' !3' -/44*-.*1' A!.2'7(*=!/03'353.*63' !D*' ./!-!36' !.' !3' &;3/' 7(&-.!-&;' !4' !.3' *413' 7(/7/3!4>' ./',!41' !4' (*&3/4' &41' D4/A;*1>*' .2*' 3*-(*.' /,' &2&775' ;!,*' &41' &16!..!4>' &<3.(03*';*&(4!4>' /4;5' A2*(*' !.' 3*(=*3' .2*' *413' /,' 7(&-.!-&;' A!B/6' *4-*' ;/>!-' 8-&;;*1' <5' 7!-0(03' " " "' /(' .2*' 1/-.(!4*' /,' -&4/43' /,' .(0.2' !3' 6&1*' *4.!(*;5' 30<3*(=!*4.' ./' 7253!-3' 7253!-3' ./' *.2!-3' 2*' 3.&41&(13' /,' D4/A;*1>*' &41' -&4/43' /,' .(0.2' !4' .2*/F (*.!-&;' 6&..*(3' &(*' .2*' !67(*33!/43' /,' .2*(3*43*3' A2!-2' &(*' .(0*' &41' !41!370.&<;*' ./>*.2*(' A!.2' .2*' 7(*3*4.&.!/43',/(6*1' ,(/6' 30-2' !67(*33!/43' &41' /7!4!/43' *OF .*41!4>' <*5/41' .2/3*' !67(*33!/43' !4' 3/',&(' &3' .2*5' &(*' 3077/(.*1' /(' 4/.' -/4.(&1!-.*1' <5' .2*' *=!1*4-*' /,' .2*' 3*43*3' 4'7(&-.!-&;' :0*3.!/43' .2*',**;!4>3' /,' 7;*&30(*' &41' 7&!4' &(*' .2*' .*3.3' 7!-0(03'7253!-3' !4' A2!-2' 2*' ,/;;/A3' !4' *33*4.!&;3' .2*' 6&.*(!&;!3.!-' 53.*6' /,' *6 -(;.03' &(*' !4.*41*1' ./' (*,*(' &;' 72*4/6*4&' ./' &' 4&.0(&;' -&03*' !4' /(1*(' .2&.' &' D4/A;*1>*' /,' 4&.0(*' 6&5'3*.' 6*4',(**,(/6' .2*' </41&>*' /,' 1!3:0!*.!4>' 307*(3.IF .!/43' 4'*.2!-3' 2*',/;;/A*1' A!.2!4'-*(.&!4' ;!6!.3' .2*' 5(*4&!-'1/-.(!4*' /4-*!=!4>' .2*' 2!>2*3.'>//1' ./' <*' 2&77!4*33' &41' 2&77!4*33' ./' <*',/041' !4' 7;*&30(*' ./' A2!-2' .2*' 4&.0(&;' !670;3*3' /,' *=*(5' <*!4>' &(*' 1!(*-.*1' 0.' .2*' &!6' !3' 4/.' A!.2' 2!6' &3' !.' !3' A!.2' .2*' 5(*4&!-3' .2*' 7;*&30(*' /,' .2*' 6 4(*4.' <0.' .2*' *410(!4>' -/41!./4' /,' 7;*&30(*' A2!-2' !4' !.3' *33*4-*' !3',(**1/6',(/6' .2*' >(*&.*3./,' *=!;3' 7&!4' ;*&30(*3' &41' 7&!43' &(*' 2/A*=*(' 1!3.!4>0!32*1'4/.' 6*(*;5'!4' 1*>(**' <0.' !4' D!41' 2*' (*404-!&.!/4' /,' &' 7;*&30(*' /(' *410(&4-*' /,' &' 7&!4' !3' /,.*4' &' 6*&43' ./' &' >(*&.*(' 7;*&30(**' &41' 3!4-*' 7;*&30(*3' /,' 3*43*' &(*' 30</(1!4&.*' ./' .2*' 7;*&30!"*3' /,' .2*' 3/0;' .2*' 041!3.0(<*1' 7*&-*' /,' .2*' 3/0;' !3' &' 2!>2*(' >//1' .2&4' .2*' ,(**1/6' /,' .2*' </15',(/6' 7&!4' !(.0*' !3' 1*3!(&<;*' 4/.' ,/(' !.3*;,' <0.' ,/(' .2*' 3&D*' /,' 7;*&30(*' /,' 3/0;' A2!-2' !.' 3*-0(*3' <5',(**!4>' 6*4',(/6' ./0<;*' &41',*&(' &41' 6/1*(&.!4>' .2*!(' 7&33!/43' &41' &77*.!.*3' 2*' -&(1!4&;'=!(.0*' !3' A!31/6' A2!-2' !3' 32/A4' <5' .(0*' !43!>2.' !4' -&;-0;&.!4>' .2*' -/43*:0*4-*3' /,' /0(' &-.!/43' &3' (*>&(13' 7;*&30(*' /(' 7&!4 2*' 7(&-.!-&;' .*41*4-5' /,' ./!-!36' &21' 7!-0(*&4!36' 3**4' !4' .2*' 3*&(-2',(' 2&77!F 4*33' !3' &;3/' &77&(*4.' !4' .2*' ,/041*1' <5' * 5/,' ;!3'8&</0.' ?V"@UV9' 5((2/' 1!370.*3' .2*' 7/33!<!;!.5' /,' &..&!4!4>' .(0.2' <5' 3*430/03' &77(*2*43!/4' (*&3/4' /(' .2*' .A/' -/6<!4*1' &41' .2*4-*' !4,*(3' .2*' 4*-*33!.5' /,' ./.&;' 3037*43!/4' /,'K01>6*4.' /4' .2!4>3' 203' -&4' A*' &..&!4' (*;*&3*' ,(/6

*4(/;;*1' !4' .2*' (*>!3.*(' /,' (' /(' 6*6<*(3' /,' .2*' (' /,' .2*!(' 4&.0(&;' /(' &1/7.!=*' ,&.2*(' 2!3' A&3' 1/4*' <5' .2*' (('87(*3!1*4.3' &.'.2*'-2!*,',*3.!=&;' /,' .2*' ('.2*' 7J.0(!&' ' *A;5' 6&((!*1' 203<&413' &;3/' !4.(/10-*1' .2*!(' A!=*3' !4.!' .2*' (' &-2' (' 2&1' &' 3*7&(&.*' 7;&-*'/,' A/(32!7' (" ' A!.2' .2*' &;.&(3' /,' !.3' 1*!.!*3' L*03' &41' .2*4*' A*(*' -/66/4' ./' &;;' <0.' *&-2' (' A/(32!77*1' /.2*(' 37*-!&;' 1*!.!*3' /,' !.3' /A4

2(!043' /4' /,' .2 6&3' &41' *72 ;*' .2(*&.*4*1' A!.2' 1*&.2' &3' &' 3&-(!,!-*' .2(/0>2' .2*' 6&;!-*' /,' 2!3' 3.*76/.2*(' 4/' *3-&7*1' A!.2' 2!3' 3!3.*(' *;;*' /4' &' (&6' A!.2' >/;1*4',;**-*' 3*4.' 2!6' <5' L*03' *(6*3*/(' *72*;*' *;;*' A&3' 1(/A4*1' /4' .2*' A&5' !4' .2*' 3*&' A2!-2' <*&(3' 2*(' 4&6*' .2*' *;;*3F 7/4.'' <0.' 2(!003' &((!=*1' 3&,*;5' !4' /;F -2!3' A2*(*' 2*' 3&-(!,!-*1' .2*' (&6'./' L*03' &3' .2*' H' &!1*(' /,' ,;!>2.' I' #N ' , (:- ' &41' 7(*3*4.*1' .2*' >/;1*4',;**-*' ./' D!4>' -*.*3' -*.*3' 204>' !.' /4' &4' /&D' !4' .2*' >(/=*' /,' (*3' &41' >&=*' 2(!003' 2!3' 1&0>2.*(' 2&!'' - ?7*' ./' A!,*' 2(!003' 3*4.' 2!3' 3/43' 5.!33/(03' &41' (>03' 2/6*' 2*' ,/(6*(' 3&=*1' 2!3' >(&41,&.2*(' .2&6&3',(/6' <*!4>' 3&-(!,!-*1' .2*' ;&..*(' <0!;.' .2*' 32!7' 1 ' A2!-2' A&3' 4&6*1' &,.*(' 2!6' # ' & ' &41')

2(54,-2!!3' 8$9' ' (**D' .(&>!-' 7/*.' /,' .2*43' &4' /;1*(' -/4.*67/(&(5' /,' 3-25;03' *' A/4' 2!3' ,!(3.'=!-./(5' &3' *&(;5' &3' ?$$' ' ' /' (*41*(*1' &' >(*&.' 3*(=!-*' ./' .2*' 1*=*;/7F 6*4.' /,' .2*' 1(&6&' <5' !4.(/10-!4>' &4' &-./(' 1!3.!4-.',(/4.' .2*';*&1*(' /,' .2*'-2/(03' &41' 3/' ;&5!4>' .2*',/041&.!/4',/(' .2*' 1!&;/>0*' 0.' .2*' 1!&;/>0*' A&3' 3.!;' :0!.*' 30</(1!4&.*' ./' .2*' ;5(!-3' /,' .2*' -2/(03' 4' .2!3' 1*7&(.F 6*4.' 2*' A/4' *0.(&/(1!4&(5' -*;*<(!.5' <5' .2*' >(&-*' &41' 6*;/15' /,' 2!3' =*(3*3' A2!-2' -/4.!40*1' ./' <*' 304>' &.' .2*43' ;/4>' &,.*(' *3!1*3' 65.2!-&;' 30<K*-.3' 2*' 1*&;.' A!.2' *=*4.3' /,'-/4.*67/(&(5' 2!3./(5' 1' .2*' -/4F :0*3.' /,' !;*.03' <5' .2*' *(3!&43' .' .2*' (*7(*3*4.&.!/4' /,' .2&.' *=*4.' .2*' &01!*4-*' <0(3.' !4./' .*&(3' &41' .2*' 7/*.' A&3' ,!4*1 $ NNN' 1(&-26&*' ,/(' (*-&;;!4>' .2*' 1!3&3.*(3' /,' 2!3' -/04.(5' &;' ,0(.2*(' 7*(,/(6&4-*' /,' .2*' 7!*-*' <*!4>' 7(/2!<!.*1' f *(/1 '=!' @$9' >&!4' !4' 2!3' ,(" '83/' 4&6*1' &,.*(' .2*' -2/(03' /,' !1/4!&4' A/6*49' 2*' 1*&;.' A!.2' .2*' <&..;*' /,' & 6;3' 2!3' 7;&5' A2!-2' A&3' 70.' /7' .2*' 3.&>*' <5' 2*6!3.<-;*3' !4' CUR' A&3' .2*' 6/1*;' /,' K 3-25;03' , ' 2(54!-203' ;!D*' ,,!3-25;03' !3' 3&!1' ./' 2&=*' 1!*1' !4' !-!;5' *' /4;5' 7/33*33' .2*' .!.;*3' /,' 4!4*' /,' 2!3' 7;&5' &41' &,' *A' ,(&>6*4.3

8@9' ' (**D' 7/*.' /,' .2*43' /4*' /,' .2*' ;*33' !67/(.&4.' A(!.*(3' /,' .2*' ;1' ..!-' /6*15' &41' &' ,(*:0*4.' <0..' /,' .2*' /.2*(' -/6!-'7/*.3' 4' ' ('CNV' 2/A*=*(' 2!3' .//D' .2*' 3*-/41' 7(!Q*' &,.*(' (!3./72&4*3' A 1 ' *' 2&=*' /4;5' 32/(.',(&>6*4.3' /,' &</0.'.*4' /,' 2!3' 7;&53

8 9' ' (**D' /72!3.' A2/' ;!=*1' !4' .2*' 3*-/41' 2&;' /,' .2*' (1' -*4.0(5' ' !4' !.254!&' &0.2/(' /,' &' "' ' ' = ' " ' > " ' -/67!;*1' A!.2' >(*&.' 3.(!-.4*33' !4' .2*' *0-;03!/4' /,' &;;' <0.' .2*' <*3.' ..!-' ,/(63' *' 2&=*' &;3/' 4/.&<;*' *0-*(7.3',(/6' &' A/(D' /,' 2!3' !4' .2!(.5"3*=*4' </!D3' 1*1!-&.*1' ./' .2*' *67*(/(' /661103' &41' *4.!.;*1' .2*' (' :'#, 2!' " ' .'A&3',/041*1' /4' .2*' 6/3.'-/67(*F 2*43!=*' ;*&(4!4>' &41' 1*3!>4*1' ./' 3077;5' .2*' /(&./(' A!.2' *=*(5.2!4>' 4*-*33&(5',/(' >//1'&41'70(*'*07(*33!/4' 2*'&((&4>*6*4.' !3' &;72&<*.!-&;' &41' !.' !4-;01*3' *0&67;*3',(/6' .2*' <*3.' &0.2/(3' .2*' 1!,,*(*4.' 3.5;*3' <*!4>'-&(*,0;;5' 1!3.!4>0!32*1 25;&(-203' 8$9' ' (**D' 2!3./(!&4' </(4' 7(/<&<;5' &.' &0-(&.;3' !4' >57.' &</0.' @;N' ';!=*1';/4>'&.' ;*B 4'&,.*(A&(13' !4' .2*43'' &0.2/(' /,' &' >(*&.' 2!3./(!-&;' /(D' !4' @R' </!D3'1*&;!4>'A!.2'.2*',!,.5'5*&(3',(/6' .2*'!4=&3!/4' /,' .2*' *;/7/44*303' <5' 5((203' ./' .2*' 1*&.2' /,' ; /(4 4*3'D!4>' /,' 7&(.&' 8@U@"@@$9' !3' *4.203!&3.!-'&1 6!(&.!/4' /,' .2&.' 6/4&(-2' &77*&(3' ./' <*' .2*' -&03*' /,' .2*' 3*=*(*' K01>6*4.' 7&33*1' /4' !5;&(-203' <5' /;5<!03' f!!' V?g' A2/' (*7(*3*4.3' .2*' 7(*F K01!-*1' -2&*&4'=!*A' !3' 3.5;*' A&3';!=*;5' &41' &..(&-.!=*' <0.' 0410;5' 3*43&.!/4&;' !3' A/(D' A&3' 60-2' 03*1' <5' (/>03' /67*!0&' &41' <5' ;0.&(-2' f!4' 2!3';!=*3' /,' ; 6 4*3' &41' (&.03g' 4;5' &',*A',(&>6*4.3'(*6&!4 8@9' 2*' .2*4!&4'.*(6',/(' 8&9'.2*' 7(*3!F 1*4.' /,' &' (:' 85 4 9'' 8?9' /4*' /,' .2*' .*4' 30</(1!4&.*' /,,!-*(3'-/66&41!4>'.2*'-!.!Q*4' -&=&;(5' # ' / 725;*' 2*' (**D'.*(6',/(' &' 1!=!3!/4' /,' &' 4&.!/4'-/44*-.*1'./>*.2*(' <5' 8 3077/3*1' 1*3-*4.' ,(/6' &' -/66/4' &4-*3./(' /,' .2*' 3./-D' 203' .2*' 7/70;&.!/4' /,' ..!-&' *=*4' <*,/(*' /;/4' A&3' 1!=!1*1' !4./' ,/0(' (: ' .(&-!4>' .2*!(' /(!>!4' ,(/6' ,/4(' ;*>*41&(5' 3/43' /,' /4' &41' -&;;*1' 6 " ' !1 $ ' &41' 1 ' (/<&<;5' .2*' 1!=!3!/4' A&3' ;/-&;' .2*' 4&6*3' (*,*((!4>'./' .2*' 7*-0;!&(!.5'/(' 6&!4' /--07&.!/4' /,' .2*' 6*6<*(3' /,' *&-2' 1!=!3!/4'' ,/(' &77*&(3' ./' 6*&4' A&((!/(3'.A1 '>/&.'' 2*(1 K &41' 1 '&>(!-0;.0(&;!3.3' 2*' 6*&4!4>' /,' 6 " '8/(' + " ' 2/AF *=*(' !3' :0!.*' 04-*(.&!4' &-;B25,*' A&3' 7(*3!1*1' /=*(' <5' &' (: '8D!4>' /,

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.2* (: &41 1!=!1*1 !4./ .2(** 8<(/.2*(2//13 <*!4>30<1!=!1*1 !4./ .2!(.5!,&6!;!*3 &-2 ,&6!;5 -/4.&!4*1 &</0. .2!(.5 2/03*2/;13 &41 A&3 4&6*1 &,.*(&3077/3*1 -/66/4 7(/>*4!./(!4 A2/3* 2/4/0(.2* 2/03*2/;13 -*;*<(&.*1 & -/66/4 -0;. !6!;&(;5 .2* (&41 (: A*(* 04!.*1 <5 .2* A/(32!7 /,37*-!&;7(/.*-.!4>1*1.!*3 2*3* /;1 /4!- (: A*(* 3077(*33*1 <5 ;;3 .2 4 3 A2/ 1!=!1*1 .2* 7*/7;* !4./ .*4 *4.!(*;51!,,*(*4. (: 4&6*1&,.*(&4-!*4. 2*(/*3 &!9 ((, " + " ; " " TF($ /(") " " (2*5 A*(* 30<1!=!1*1 !4./ ,!,.5 " &41 /4* 2041(*1 & 4 NU !4 2/4/0(/, *6*.(!03 <;;/(" -*.*3 &41 2!3 ,&.2*(4.!><403 .2* (A*(* !4-(*&3*1<5 .A/ -&;*1 5 <" " 1 " A2!-2 4&6*3 A*(* &,.*(A&(13 -2&4>*1 !4 2/4/0(/, ./;*65 2;;J1*;7203 /, >57. &41 ..&!43 /, *(>&6 4 !4./ , < M &41 4 ;&.*(.!6*3 &4/.2*(" A&3 &11*1 !4 2/4/0(/, .2* *67*(/(&1(!&4 *3!1*3 7(!*3.3 ,/(.2* -0;./,.2*!(*7/456/03 2*(/ .2* (2&1 7(*3!1*4.3 -&;;*1 ((&41 .(*F 30*(3 3 2*&33*6<;!*3 A*(* &;A&53 2*;1 !4 .2*43 &41 A*(* -/4-*(4*1 4/./4;5 A!.2 .2* 37*-!&;& ,,&!(3 /, ((: <0.&;3/ A!.2 .&.* <03!4*33 *37*-!&;;5 .2* 4/.!,!F -&.!/4/,.2* 7*(3/43 ;!&<;* ./ .&.* <0(1*43 &) 2* .*4 (: /, ;!3.2*4*3 3*(=*1&;3/ &3 ,/041&.!/4,/(.2* /(>&4!Q&.!/4,.2* &(65 2* ,/(-*3 A*! * (&!3*1 A2*4 (*:0!(*1 ,(/6 .2* 603.*("(/;* /, .2* (: &41 1!=!1*1 &--/(1!4>;5 !4./ .*4 <&..&;!/43 A2!-2 A*(* .2*63*;=*3 &;3/ -&;;*1 (: 2* /(!&4 3./-D A&3 >*4*(&;;5 1!=!1*1 !4./ .2(.5 &43A*(!4> ./ .2* ,&6!;!*3 &. .2*43 25;;!3 &0>2.*(/, .2* 2(&-!&4 D!4> !.2/4 (/6 1*37&!(&. .2* 1*;&5 /, 2*(<*.(/.2*1 `6?72??4 & @ !4 -/6!4> ./ A*1 2*(32* 70. &4 *41 ./ 2*(;!,* &41 A&3 -2&4>*1 !4./ &4 &;6/41 .(** f =!1 f [253!-!&43 2* @ .(&-*1 .2* /(!>!4 /, .2* 2*&;!4> &(. ./ &1*!,!*1 3/4 /, .2* 2*&;!4> >/1 7/;;/ &41 &7071!;/, .2* 3&>* -*4.&0(2!(/4 =!Q 1 A2/3* 3/43 <1&;!(!03 &41 T-2J/4 !4 /6*(!-7/*.(5 &-. <*,/(* (/5 </.2 &3 A&((!/(3 &41 &3 30(>*/43 2* .*67;*3 /, 3-;*7!03 1!3.!4>0!32*1 ,/(.2*!(2*&;.25 3!.0&.!/4 /4 2*&1;&413 &41 ;/,.5 2!;;3 !4 .2* 6!13./, >(/=*3 &41 4*&(6*1!-!4&; 37(!4>3 A*(* 60-2 (*3/(.*1 . &3 *37*-!&;;5 .2/3* &. 7!1&0(/3 4!103 &41 /3 &41 A*(* ,/(-*4.0(!*3 .2* -2!*, 3*&.3 /, .2* >(&10&; 1*=*;/76*4. /, ;**-2-(&, 2* 7(!*3.3 A2/ 3.5;*1 .2*63*;=*3 /1*3-*41&4.3 /, 3-;*7!03 6&1* 03* /, 6*6/(&41& /4 .2* .(*&.6*4. /, 7&.!*4.3 -/4.&!4*1 7&(.;5!4 .2*=/.!=* .&<;*.3 A2!-2 .2*3* 204>07 !4 .2* .*67;* &41 7&(.;5!4 .2* .*67;* -2(/4!-;*3 203 !4 -/0(3* /, .!6* .2*5 -/;;*-.*1 &=&(!*1 3./-D /, *07*(!F 6*4.&; 6&0!63 A2!-2 A*(*# 2&41*1 1/A4 ,(/6 ,&.2*(./3/4 /6* /, .2* 3-;*7!&13* 7(&-.!3*1 .2*!(&(. 3!4>;5 &3 .(&=*;;!4> 7253!-!&43 <0. A*(* </041 <5 /&.2 ./ .*&-2 !. ./ 3-;*7!&13* &;/4* .2* 3&6* .!6* .2*(* A*(* 4/. A&4.!4> 7253!-!&43 A2/ 3.&41!4>/0.3!1* /, .2&. -;/3* -/(7/(&.!/4 7(&-.!3B 6*1!-!4* !41*7*41*4.;5 &3 & 6*&43 /, ;!=!4> <0. .2*5 A*(* ;*33 2!>2;5 (*>&(1 .2&4 .2* 3-;*7!&1) &41 4*=*(&-6*=*1 &2!>2*(3.&41!4> .!;; .2* 2*&;!4> &(. 2&1 <0(3. !.3 4&((/A ;!6!.3 &41 2&1 *07&41*1 !4./ &, (** 3-!*4-* 2!3 A&3 <(/0>2. &</0. 6&!4;5 <5 .2* !4,;0*4-* /, 72!;/3/725 A2!-2 <*>!44!4> A!.2 5.2 ><(&3 2!63*;, & 7(/,!-!*4. !4 .2* &(. &41 -/4.!40!4> -2!*,;5 041*(67?11-;`3 &41 *61-(!.03 1(*A 6*1!-!4* A!.2!4 .2* (&4>* /, 2*((*3&(-2*3 4./ ;!.*(&.0(* .2* 2*&;!4> &(. A&3 !4.(/10-*1 <5 !, 5- &4 3-;*7!&1 /, /3 </6 &</0. C?N A2/ -/6<!4*1 .2* 2*(*1!.&(5 A!31/6 /, 2!3 (&-* A!.2 .2* 37!(!. /, 37*-0;&.!=* 72!;/3/725 *3!1*3 7253!-!&43 A2/ A*(* 7&!1 ,/(.2*!(./0<;* <5 .2*!((*37*-.!=* 7&.!*4.3 A* ,!41 &3 *&(;5 &3 .2* ?.2 -*4.0(5 &. .2*43 -2!*,;5 <0. !4 /.2*(7;&-*3 .// 70<;!-7258 3!/!&43 &77/!4.*1 &41 (*604*(&.*1 <5 .2* .&.* /6* A*4. ./ .2*!(7&.!*4.3 2/03*3 /.2*(3 2&1 (//63 A2*(* .2*5 A*(* -/430;.*1 <5 .2*!(7&.!*4.3 2*5 /,.*4 D*7.&33!3.&4.3 </.2, (** &41 3;&=*3 &41 .2*5 6&40,&-.0(*1 .2*!(/A4 6*1!-!4*3 2* 3.5;* /, ;!=!4> &1/7.*1 <5 6&45 7253!-!&43 7!4.3./(*37*-.F &<;* !4-/6*3 *6 -*1 3 &70<;!-7253!-!&4 &. .2*43 !4 .2* ?.2 -*4.0(5 2&1 & 3&;&(5 /, $NN 6!43* 8&</0. E 9 . ;*0&41(!& .2&4D3 ./ .2* 604!,!-*4- /, .2* ./;*61*3 6*1!-!4* 6&1* -/43!1*(&<;* 7(/>(*33 -2!*,;5

.2(/0>2'$ ' P ' A) '&41' ,! ? ; !(3.2*' .A/' 6*4' A2/' D4*A' 6/3.' &</0.' 206&4' &4&./65' '707!;'/,'.2*' ;&..*(' A A %$ /,' /3'8&</0.' BVN9'!4'/77/3!.!/4'./'.2*' 5 1R ' 3-2//;' 3*.' 07' <5' .2*' 3/43' /,' !7F 7/-(&.*3' &41' 1/6!4&.*1' <5' 72!;/3/72!-' .2*/(!*3' ,/041*1' &4' 9 ' 3-2//;' A2!-2' (*;!*1' 3/;*;5' /4' .(&1!.!/4' &41' /4' !41!=!10&;' *07*(!*4-*

4'@$T' 'A2*4'&'6*6<*('/,'.2&.'3-2//;' .2*' *;/7/44*3!&4' '( ) '3*.' 07'&' 30(>*(5'!4'&'</!.2'& " '&33!>4*1'2!6' <5'.2*' *4&.*' &41'A&3'&16!..*1'./'.2*' -!.!Q*432!7'.2*' "(**D'&(.'/,'2*&;!4>'>&!4*1' &',//.!4>'&6/4>'.2*' /) ' *.' .2*' 7253!-!&4'7(&-.!3!4>',/('7&5'1!1'4/.'*4K/5' .2*'3&6*'-/43!1*(&.!/4'&3'!4' (**-*' /6&4' -!.!Q*43',/0>2.'325'/,'&'7(/,*33!/4'A2!-2' (*37*-.&<;*' &3'!.'6!>2.'2*'A&3';*,.'&;6/3.' *4.!(*;5'!4' .2*' 2&413'/,',/(*!>4*(3',(**1' 6*4'&41'3;&=*3' /6&43'/,' (&4D'030&;;5' D*7.'&',(**16&4'/('3;&=*'&3',&6!;5'1/-./(' ' D '8/(' ' ' -/43!1*(F &<;*'7&(.'A&3'7;&5*1'&.' /6*'<5' !-*(/3' ,!!*41'3- ,!7; ,!3'/,' (03&'A2/3*'353.*6' 6&!4;5'1!(*-.*1'./'7(&-.!-&;'3D!;;' (*-*!=*1' !.3'.2*/(*.!-'K03.!,!-&.!/4',(/6'.2*'3-2//;/,' (',/041*1'<5' &A '/,'& 1 -*&' P&</0.'?' 9' 2*4' &*3&'2&1'>(&4.*1' .2*-!.!Q*432!7'./,/(*!>4'7253!-!&43'&3'A*;;' &3'.*&-2*(3'4/./4;5'1!1'.2*',/(6*(,!/-D'!4' ;&(>*'406<*(3'./ /6*,(/6' (**-*' >57.' &41'.2*' &3.'<0.'6&45'4&.!=*3'&1/7.*1'.2*' 6*1!-&;'7(/,*33!/4'&3' ")'!4' .2*'(*!>4' /,' !<*(!03'A2/3*'.(*&.!3*'5 " ' 603.'<*'(*>&(1*1'&3'.2*'-2!*,'-/4.(!<0.!/4' 6&1*'./'.2*'3-!*4-*'<5'.2*' /6&43' /' .2*'7253!-!&43'&.' /6*'/,'A2/3*'(*-*!7.3' &'4/.!/4'6&5'<*',/(6*1',(/6'.2*'3.&.*6*4.' .2&.'&'-*(.&!4' .*(.!4,03'2&1'&4'!4-/6*'/,' E?VNN',(/6'2!3'./A4'7(&-.!-*' 0>03.03' >(&4.*1'!6604!.5',(/6'&;' 70<;!-'10.!*3' &' 7(!=!;'>*'&,.*(A&(13'*0.*41*1'./'.2*' 7(/=!4-*3

3'3//4'&3'.2*' 67!(*'A&3',0;;5'*3.&<F ;!32*1'7253!-!&43'A!.2'&',!0*1'3&;&(5'<*>&4' ./'<*'&77/!4.*1'&.'.2*'-/0(.'!4'.2*'&(65' ,/('.2*'>;&1!&./(3'&41'!4'.2*'3*(=!-*'/,' &(!/03'-/6604!.!*3' 4.V4;403'!03'!4' .2*'@41'-*4.0(5' '&(.&4>*1',/('.2*' 7(/=!4-*'/,' 3!&'!4'.2*',!(3.'!43.&4-*'.2&.' 7253!-!&43'32/0;1'<*'&77/!4.*1'<5'.2*'./A4' &0.2/(!.!*3',!=*'!4'36&;'./A43'3*=*4'!4' .2/3*'/,'6/1*(&.*'3!Q*'&41'.*4'!4'-&7!.&;3' .2*5'A*(*'./'<*'(*604*(&.*1'<5'.2*'./A4' *O*67.',(/6'&;'<0(1*43'&41',(**'./'-&((5' G/4&'7(!=&.*'7(&-.!-*'<*3!1*3'2*(*'A&3' 4/'(*&;'307*(=!3!/4'/,'7253!-!&43'/4'.2*' 7&(.'/,'.2*' .&.*'&41'.2*'=&(!/03'3-2//;3 &41'4&.!/4&;!.!*3'A*(*'&.'7*(,*-.';!<*(.5'./' 7(&-.!3*

41*('.2*' 67!(*'.2*'&(.'<*>&4'./'1!=!1*' !4./'3*7&(&.*'<(&4-2*3'&41'!4';&(>*'./A43' *37*-!&;;5' /6*'.2*'3*=*(&;'37*-!6.!*3'2&1' .2*!('(*7(*3*4.&.!=*3' 203'!4'&11!.!/4'./' 1/-./(3'./('!4.*(4&;'-0(*3'.2*' 7(/F 7*('.2*(*'A*(*'30(>*/43'#(' 1'/('2 " '/-0;!3.3'1*4.!3.3'&0(!3.3" 725F 3!-!&43'6&;*' /('*6&;*' ,/('1!3*&3*3' /, A/6*4" &;3'/,/(' (07.0(*3',!3.0;&'*.-" ,0(.2*(' 7(/<&<;5'&.',!(3.'6*(*' &33!3.&4.3'A2/'(0<<*1'!4'.2*'*6<(/-&.!/43' *.-'&,.*(A&(13'&37*-!*3'/,'1/-./(3' 2* 7253!-!&43'&.' /6*'&3'!4' (**-*' 3077;!*1' .2*!(' /A4'6*1!-!4*3'&41'.0(4*1'.2*6'./' 7(/,!.'<5'-(5!4>'07'.2*'1*&(*3.'1(0>3'/, A2!-2'.2*5'D*7.'.2*'3*-(*.'&3'.2*' <*3.' 2*'6*1!-!4*3'A*(*'7(/=!1*1'A!.2'&;&<*;' 3*..!4>',/(.2'.2*'4&6*'/,'.2*'(*6*15'&41' .2&.'/,'!.3'!4=*4./('.2*'-/67;&!4.3'!.'A&3' >//1',/('&41'1!(*-.!/43',/('03*' *'>*.'&' &,!('4/.!/4'/,'.2*3*';&<*;3',(/6'.2*'1!*3' 03*1'<5' /6&4'-0;!3.3'./'6&(D'.2*'4&6*3' /,'.2*!('*5*"3&;=*'/4'.2*'</0*3'!4'A2!-2' .2*5'A*(*3/;1'&>//1'6&45'/,'.2*3*'2&=*' <**4'7(*3*(=*1' f ' (/.*,*41'5 ' ' ' 1 " Q '.2*(*'&(*' 3*=*(&;'!4'.2*' (!.!32'03*06'./>*.2*(' A!.2'.A/'=*(5'36&;'!43-(!<*1'=&3*3'30-2' &3'A*(*03*1'./'-/4.&!4'.2*'*5*"3&;=*3g' 2* -2!*,'&0.2/(!.5',/('.2*' ' /, .2/3*'.!6*3'!3'.2*'A/(D'/,'A ($'A $/, .2*'$3.'-*4.0!5' '</0.'.2*'3&6*'.!6* .2*'3-2//;'/,' ('A2/3*'7(!4-!7&; (*7(*3*4.&.!=*'A&3' '8&</0.'$$N9' A&3'-/4,(/4.*1'<5'&'>@'5 1 '3-2//;' /.2*(A!3*'-&;;*1' .2*' ," ' 3-2//;' ,/041*1'<5'.2*' !;!-!&4'). ' /' .2*'9 'B3-2//;',/041*1'./A&(13'.2*'*41' /,'.2*'$3.'-*4.0(5'<5' 1& *!#/,'7&(.&' <*;/4>3'6/(*' *37*-!&;;5' .2*' &77&1/-!&4' A(!.*(' 7)' 2*'6/3.'(*4/A4*1'/,' .2*';&.*(' 7253!-!&43'!3'@ '#6 " ' !4'.2*'@41'-*4.0(5'A2/'!4'2!3'406*(/03' A(!.!4>3'*6<(&-*1'.2*'A2/;*'(&4>*'/,'.2* 6*1!-&;'D4/A;*1>*'/,'&4.!-K0!.5' *1!-!4*' 6&1*'4/',0(.2*('7(/>(*33'!4'&4-!*4.'.!6*3' ,'.2*'*4-5-;/7&*1!-'A/(D3'/,' ' '&# !# &41' !#8&.'.2*'*41'/,'.2*'C.2'-*4.0(5' &41'<*>!44!4>'/,'.2*'?.29'.2*'=&;0*';!*3'!4' .2*!('*0.(&-.3',(/6'/;1*('A(!.!4>3' 6/4>' .2*' /6&43' ' 8# &'11# 8!4'.2*' 6!11;*' /,'.2*' $3.'-*4.0(59'&41' ' 1# & . 1#8&.'.2*'<*>!44!4>'/,'.2*' (19' A(/.*' /4' *6*1!*3'.2*' ;&..*('!4'=(3*' *'2&=*'*';&3.;5'./'6*4.!/4'' 9 C ' ' ' ; '.2*'.(&43;&./('/,'A/(D3'<5' /(&403' 8!4'.2*'V.2'-*4.0(59'&41' ,! ('.2*

&0.2/(' /,' &' 1*.&!;*1' </!/D' /4' =*.*(!4&(5' 3-!*4-*' 8!4' .2*' C.2' -*4.0(59

25.&!03' ' 2*(/' /,' ;*03!3' 2*' (*-*!=*1' ,(/6' *6*.*(' .2*' ,!>' .(**' &3' &' (*A&(1' ,/(' 2/37!.&<;*' *4.*(.&!46*4.' f &03&4!&3' !' U' C (D' !3' 1*3-*41&4.3 .2*' , (' <5' &4-!*4.' -03./6' 7*(,/(6*1' .2*' 70(!,!-&.!/4' ,/(' <;//1"32*11!4>' !4' ..!-&' &--/(1!4>' ./' .2*' ;*>*41' <*-&03*' .2*5' 2&1' &<3/;=*1' 2*3*03' 041*(' 3!6!;&(' -!(-0 6 3.&4-*3' f ;0F .&(-2' + ' (' ((D' & ' (

!-0 6 403' 4' /;1' .&;!&4' >/1' /,' &>(!F -0;.0(*' -(*1!.*1' A!.2' .2*' !4=*4.!/4' /,' .2*' 03*' /,' 6&40(*' *' &3' 3&!1' ./' <*' .2*' 203F <&41' /,' /6/4&' !3' <(/.2*(' , ; " ' A&3' 2/4/0(*1' <5' <&D*(3' &3' .2*' !4=*4./(' /,' .2*' 7*3.;*' # ' ,/(' -(032!4>' -/(4' &41' .2*' .A/'./>*.2*(' A*(*' 7(/.*-.!4>' 1*!.!*3' ./' A/6*4'!4'-2!;1"<*1'&41'./' 4*A"</(4'!4,&4.3' *4-*' !4' .2*' -/04.(5' ,*3.&;' -/0-2*3' A*(*' 3*.' ,/(' .2*6' !4' .2*' A2*4' -2!;1(*4' A*(*' 3&,*;5' </0>2.' ./' <!(.2' --/(1!4>' ./' &4/.2*(' &4-!*4.' =!*A' .2*(*' A*(*' .2(**' 1!=!4!.!*3' 7(/.*-.!4>' 6/.2*(' &41' -2!;1' A2/' 7(*=*4.*1' .2*' 6!3-2!*=/03' !4.(03!/4' /,' !;=&403' !4./' .2*' 2/03*' 2*3*' 7/A*(3' 8(*7(*3*4.!4>' .2*' .(!0 6 72' /,' -!=!;!Q&.!/4' /=*(' .2*' A!;1' ,/(*3.';!,*9' A*(*'!67*(3/4&.*1' <5' .2(**' 6*4' A2/' A*4.' (/041' .2*' 2/03*' !4' .2*' 4!>2.' &41' D4/-D*1' /4' .2*' .2(*32/;1' /,' .2*',(/4.'&41'<&-D'1//(3',!(3.'A!.2'&'2&.-2*.' &41' .2*4' A!.2' &' 7*3.;*' &41' ;&3.;5' 3A*7.' .2*6' A!.2' &'<(//6

2*' 4&6*3' /,' .2*3*' 1*!.!*3' A*(*' ' 2 " '>/1' /,' .2*' 2*A!4>' /,' .!6<*(3', @ 2 " '/,' .2*'-(032!4>' /,'-/(4!4./'6*&;'<5'.2*' 7*3.;*'&41 B0*(6 /,.2*'3A**7!4>'./>*.2*(' /,' >(&!4' f &(((/' :0/.*1' <5' 0>03.!4*' 5' $ ' 5 ' =!' Tg' !-0 6 403' &3' &77*&(3' !4' .2*' 4&6*'!3' !1*4.!-&;' A!.2' !/03' 8: 0 9

!/03' 4' .&;!&4'>/1' /,' &>(!-0;.0(*' &41' 37*-!&;;5' /,' 6&40(*' 2*4-*' -&;;*1' 3/4' /,' .*(-,!.03' 8H' .2*' 1&4>*(!' ' &.0(49' *' &;3/' &77*&(3' &3' &' ,/(*3.">/1' A!.2' 7(/72*.!-' 7/A*(3' &41' &3' ,&.2*(' /,' &0403' f *(>!;' " '=!!' CRg' 4' &.!4' ;*>*41' 2*' 7;&53' &' 7(/6!4*4.'7&(.'&3'&'A&(;!D*'2*(/'.2*'*&(;!*3.' D!4>' /,' &.!06' /,' >(*&.' A*&;.2' A2/' A&3' ,!4&;;5' -2&4>*1' !4./' &' A//17*-D*(' ' # ' $RU"$TN9' f --/(1!4>' ./' =!1' ' O!=' @N" T?g' .2!3' A&3'<*-&03*' 2*' 370(4*1' .2*' ;/=*' /,' !(-*' &41' A&3' ,&!.2,0;' ./' .2*' <*&0F .!,0;' 5672' ,.4*43' (/<&<;5' !-03' A&3' (!>!4&;;5' .2*' A//17*-D*(' .2*' 356</;' /,' &(3' &3' >!=*(' /,' ,*(.!;!.5' &41' A&(;!D*' 7(/A*33' &41' ,(/6' .2!3' 356</;' .2*(*' A&3' 1*=*;/7*1' &' 3*7&(&.*' 1*!.5

,!.&3' 2*' /6&4'>/11*33' /,' 1/6*3.!-' &,,*-.!/4' 4' /6*' 32*' 2&1' &' 37*-!&;' .*67;*

/A*1' &.' .2*' <&..;*' /,' 2*(6 75;3*' !4' T' '<5' -!;;03' ;&<(!/'&41' -/43*-(&.*1' K(' 2!3' 3/4' !4' ;R;' 2*' 7/70;&(';*>*41' A&3' .2&.' !.' A&3' *(*-.*1' &3' &' 7!*6/(!&;' ./' &' 1&0>2.*(' A2/' 2&1' 3077/(.*1' A!.2' .2*' 6!;D' ,(/6' 2*(' <(*&3.' .2*' ;!,*' /,' 2*(' 6/.2*(' 8/(' ,&.2*(g' A2*4' -/41*64*1' ./' 1*&.2' <5' 3.&(=&.!/4' f &;*(!03' &0' =' C' `' Ug' 4' -/143' .2*' >/11*33' &77*&(3' &3' &' 6&.(/4' 3.(*A!4>' !4-*43*' /4' &4' &;.&(' 2*(' 356</;' !3' .2*' ./(D

!>6*4.3' ' '87' CCU9

!>(*3' ' (**D' 7/*.' &0.2/(' /,' .2*' (: ' & D "97' ' " 2

!;*4.06'#; " ' ' 3/(.'/,'37(!4>"-&(.' 03*1' -2!*,;5'<5'A/6*4' # ' "

!;; !;' 8 (' " f;*33' -/((*-.;5' 37*;.' %' (/041',*;.' -&7' A!.2' ;!..;*' /(' 4/'<(!6';5!4>'-;/3*'./'.2*'.*67;*3' .' A&3'" .2*' 6&(D'/,',!32*(6*4'3&!;/(3'&41'&(.!3&43' 2*4-*' &3./('&41' /;;00' 1533*03' 2&(/4' *72&*3.03' &71' &*1&;03' &(*' (*7(*3*4.*1' A!.2' !.' 2*' 077*(' -;&33*3' A/(*' !.' /4;5d

8Y

8$9g &4/,DB+' !;8 j(" "' =!!!'?

8 g 0;;*(3' '0;=!!'@$V&

!4' .2*' -/04.(5' /(' A2*4' .(&=*;;!4>' <0.' !.' A&3' A/(4' !4' /6*' <5' .2*' A2/;*' 7*/7;*' &.' .2*' " '&41' <5',(**16*4'&3' &' 3!>4' /,' .2*!(' 4*A' 7/3!.!/4' .' A&3' 7;&-*1' /4' .2*' 2*&1' /,'3;&=*3' A2*4' 3/;1' &3' &' 3!>4' .2&.' .2*' =*41*(' 041*(.//D' 4/' (*37/43!<!;!.5' # '-0.3' &41' '5 $$) ',!>' $' &41' -/!4' 041*(' -))

!;06' 2*' K&=*;!4' /,' .2*' /6&4' ;*>!/4&(!*3'8&</0.'3!0',**.';/4>9' A2!-2' &3' 20(;*1'&.' .2*' *4*653' (&4D3'&.' .2*' <*>!4F 4!4>' /,' .2*' *4>&>*6*4.' <*,/(*' 7(/-**1!4>' ./' .2*' 03*' /,' .2*' 3A/(1' .' -/43!3.*1' /,' & A//1*4' 32&,.' .2(**',**.';/4>' *&3!;5' >(&37*1' !4' .2*' 2&41' &41' &4' !(/4' 2*&1' /,' .2*' 3&6*' ;*4>.2' -0;6!4&.!4>' !4' &' <&(<*1' 7/!4.' &41' 7(/=!1*1' A!.2' &' 3/-D*.' ./' A2!-2' .2*' 32&,.' A&3' &..&-2*1' <5' !(/4' (!=*.3' ,.(!03' 2&1' .2*' 2*&13' -/43.(0-.*1' /,' 3/,.' A*&D' !(/4' .2*' 7/!4.' /4;5'<*!4>'3.**;*1' 4' .2!3' A&5' !,' .2*' 7/!4.' 3.0-D' !4' .2*' 32!*;1' /,' &4' *4*65' .2*' !(/4' A&3'<*4.'<5' .2*' A*!>2.' /,' .2*' 32&,.' (*41*(!4>' .2*' A*&/7/4' 03*;*33' &41' 1!,,!-0;.' ./' 1(&A' /0.' A2!;*' !.' 6&1*' .2*B

32!*;1 04 6&4&>*&<;* 3/ ;/4> &3 !. (*6&!4*1 !4 !. f ;0.&(-2 @Vg 2*4 A*;; .2(/A4 .2* 7!;06 A/0;1 7*4*.(&.* </.2 32!*;1 &41 &(6/0(# -0. 9 !;06403 4* /, .2* .2(** 1*!.!*3 -/4-*!=*1 <5 .2* .&;!&4 .(!<*3 ./ 7(/.*-. A/6*4 !4 -2!;1<*1 &41 .2*!(/,,37(!4> ,(/6 .2* 6!3-2!*, /, .2* ,/(*3. >/1 !;=&403 # !-0 . 9 !41&(8 (, " 2* >(*&.*3./, .2* (**D ;5(!- 7/*.3 </(4 &</0. V@@ c/ &. 54/3-*72&;6 4*&(2*<*3 3/4 /, .2* ,;0.*" 7;&5*(&;72&4.03 /, .2* &4-!*4. &41 4/<;* ,&6!;5 /, .2* 1 ! !3 !43.(0-F .!/4 !4 6 03!- <*>04 <5 2!3 ,&.2*(A&3 -/4.!40*1 <5 .2* 6 03!-!&4 &41 1!.25(&6<!- 7/*. &303 /, *(6!<4* &41 .2* .A/ /*/.!&4 7/*.*33*3 5(.!3 &41 /(!44& * 30<3*:0*4.;5 *4K/5*1 .2* !43.(0-.!/43 /, .2* *6!4*4. 6 03!-!&43 > .2/-;*3 &41 7/;;/1/(03 &. .2*43 * ;!=*1 -2!*,;5 &. 2*<*3 <0. A&3 (*4/A4*1 &41 2/4/0(*1 ,&(&41 A!1* &6/4> ,(** -/6 604!.!*3 &3 A*;; &3 <5 .K(&4.3 &41 6/4&(-23 4/. /4;5 ,/(2!3 3D!;; !4 2!3 &(. <0. &;3/ ,/(<!3 7(/,/041 7!*.5 3 &37*-!&;,&=/0(!.* /, 7/;;/ 2* A&3 >!=*4 &3*&.!4 .2* .*67;* &. *;72! &41 A&3 (*>0;&(;5 !4=!.*1 ./ .2* 1!=!4** <&4:0*.-&;;*1 .2* +(- " 2*4 2* A&3 -/41*64*1 ./ & ,;4* <5 2!3 ,*;;/A -!.!Q*43 ,/(>;/(!,5!4> .2* 2/3.!;* -!.5 /, .2*43 .2* .2*4!&43 (*-/07*1 2!6 &41 &--/(1*1 2!6 .2* 2/4/0(- " &41 &,.*(A&(13 *(*-.*1 & <(/4Q* 3.&.0* !4 2!3 2/4/0(* A&3 /4 .2* 6/3. !4.!6&.* .*(63 A!.2 654.&3 /, &-*1/4 .2* ;*0J1&* !4 2*33&;5 &41 (-`3;;&03 /, 5(`4* <0. 6/(* *37*-!&;;5 A!.2 2*(/4 /, >(!>*4.06 &41 A!.2 ;*(/4 /, 5(&-03* &. A2/3* -/0(. 2* ;!=*1 CU?"CU@ * 1!*1 & 7*&-*,0;1*&.2 C@@ &>*1 *!>2.5 !4 .2* .2*&.(* &. (>/3 .!3 A*;; D4/A4 .2&. !4 .2* 1*3.(0-.!/4/, 2*<*3 ;*0&41*(.2* (*&. 37&(*1 !41&(3 2/03* &41 1*3-*4F 1&4.3 &;/4* f !/4 2(53/3./6 !! 7 @V ! ;.43 .2!(1 4>;!32 3/44*.g 3 &7/*. !41&(A&3 (*6&(D&<;5 7(/;!,!- !3 A/(D3 1!=!1*1 <5 .2* ;*0&41(!&4 3-2/;&(3 !4./ 3*=*4.**4 </D3 !4-;01*1 (: " " (: ! (" " (" &41 " W /(&-* !=@g , 6/3./,2!3 7/*.(5 A* 2&=* /4;5 ,(&>6*4.3 <0. .2* ,/0(</D3 /, " &(* 4*&(;5 -/67;*.* 2*3* A*(* 3/4>3 -*;*<(&.!4> .2* =!-./(3 !4 .2* >(*&.4&.!/4&;>&6*3 &41 304> <5 &-2/(03 3/6*.!6*3 &. .2* 3-*4* /, .2* =!-./(5 3/6*F .!6*3 &. .2* ,*&3./4 .2* =!-./(3 (*.0(4 2/6* 2*5 -/4.&!4 ,/0(.**4 ;567!&4 .A*;=* 5.2!&4 *;*=*4 *6 &4 &41 *!>2. 3! !6!&4 /1*3 !41&(3 7/*.(5 !3 -2&(&-.*(!Q*1 <5 6&>4!,!-*4- &41 0<;!6!.5 /, .2/0>2. *07(*33!/4 &41 6*.(!-&;,/(6 .!3 7*(F 6*&.*1 <5 1**7 &41 A&(6 (*;!>!/03 3*4.!F 6*4.3 (*3.!4> /4 .2* 7/70;&(-(**1 3.!;; 04!670>4*1 <5 3/72!3.!-.*&-2!4> &41 /4;5 *44/<;*1 <5 .2* !67(*33 /, .2* 7/*.3 7*(F 3/4&;!.5 1/*3 4/. -*;*<(&.* .2* =!-./(3 <5 7&(.!-0;&(1*3-(!7.!/4 2* .&D*3 2!3 6&!4 !1*&3 ,(/6 .2* -!(-063.&4-*3 /, .2* =!-./(3 2/6* /(7*(3/4&; 7/3!.!/4 /(,(/6 .2* 4&.0(* /, .2* -/4.*3. &41 A/(D3 .2*6 !4./ &7;/.&;A&53 &(.!3.!-.2/0>2 /,.*4 /<F 3-0(*1 <5 .2* !4.*(;&-!4> /, .2* 3.(&413 /, .2/0>2. &41 <5 .2* 65.23 A2!-2 &(* !4.*(F A/=*4 !4 &77(/7(!&.* 1*.&!; &(6/45 !4 .2/0>2. *07(*33!/4 &41 6*.(* 6&D* .2* 32/(.*3. &41 ;/4>*3. /, 2!3 7 *63 *:0&;;5 -/67;*.* !4 .2*63*;=*3 &3 /(D3 /, &(. !41&(3 7/*.!-; ;&4>0&>* !3 .2* /4!- /6*(!- 1!&;*-. !4.*(6!4>;*1 A!.2 / !- &41 *37*-!&;;5 A!.2 /(!-,/(63 5 3/6* 6!3.&D* 2!3 4&6* #, " + (" <*-&6* &..&-2*1 ./ &4 &<3.(&-./, /6*(3 ;!&1 (!..*4 !4 &.!4 2*O&F 6*.*(3 ,(.2* 03* /, 3-2//;3 !4 .2* $3. -*4.0(5 &41 60-2 03*1 !4 .2* !11;* >*3 ;(&*;-.!3 (**D 7&!4.*(7(/<&<;5 /, .2* .!6* &,.*(;*0&41*(.2* (*&. * A&3 .2* -2!*, (*7(*3*4.&.!=* /, A2&. !3 -&;;*1 (1 (8H 7&!4.!4> /, 7*..5 30<K*-.3 30-2 &3 3.!;;";!,*!9 * 7&!4.*1 1 " 7!-.0(*3 !4 .2* 0.-2 3.5;* 8<&(<*(3 &41 -/<<;*(3 32/739 &41 30<K*-.3 !4 3.!;;";!, / 36&;; 3!Q* <0. /, 7(/7/(.!/4&.*;5 -&(*F ,0;*0*-0.!/4 f (/7*(.!03 !!! T $@K , < 4 ;!45 > 00!= $$@ .2* 6&403-(!7. (*&1!4> !3 (: 1 (#P (&> &41 .&..*(7&!4.*(9 1*,*41*1 !4 (044 3 " 1 ((!! @?N &>&!43. *;-D*(3 030&;;5 &--*7.*1 *6*41&.!/4 (1 (H./5"7&!4.*(H 7&!4.*((!=!&; 30<K*-.3 ,(/6 (H 7*..5 A&(*3 H /113 &41 *413 2* A/(1 (1 (!3 &-.2

D

03*06 & &!03 (*3./(*1g

&;;5 ,/041 !4 !-*(/ 0='$?J &41 !.3 /77/3!.* 1<M1 !4 !.(0F =!03 =!! C ^ C g

!3-!4&8,!32"7/419 7//:/(<&3!4 /,A&.*(!4 /6&4<&.2"(//63 # ?

!3./(2* /6&4<&D*(# ?

.2/*>;& 2* ,!(3.1&5 /,.2* ,*3.!=&;/,.2* " (# *

!.213 #6 (**D A!4*"K&(/,*&(.2*4A&(* A!.2 & A!1* 6/0.2 &41 &-;/3*",!..!4>;!1 # 1

!..2*03 ^!4>/,(/*Q*4 ,&.2*(/,.2(&.2* 6/.2*(/, 2*3*03 #

.51-&67.*3 #6 P7!4*"<*41*(I9 &4&6* &77;!*1./.2* (/<<*(!4!3 &

;&4;7*3 0 &

;&./8 (, $ A2/32&(*3 A!.2(!3./.;* .2* ,!(3.7;&-* &6/4> .2* 72!;/" 3/72*(3 /,&4.!:0!.5 A&3 </6 &. .2*43C@R 8&--/(1!4>./.2* 3./(5/4.2* @$3./,&5 .2*<!(.21&5/,7/:;/9 !3 ,&.2*((!3./4.(&-*1 2!3 1*3-*4.,(/6 D!4> /1(03 2!3 6/.2*(*(!-.! 4* <*;/4>*1./.2* 3&6* ,&6!;5 &3 ?;14 (!>!4&;;5 -&;;*1 &,.*(2!3 >(&41,&.2*((!3./-;*3 2* &,.*(A&(13

8 *6 &(!3 9

/<.&!4*1.2* 4&6*/,;&./83&!1./2&=* <**4 >!=*4 <5 *(D.*39 *!.2*(,(/6.2* <(*&1.2/,2!3 32/0;1*(3/(,(/6.2* &67;*,;/A/,G2!3 7**-2 !3 5/0.2,&;;3 !4.2* .!6*/,.2* *;/7/44*3!&4 &(A2*4 .2*43.2/0>2 &;!*&15 *4.*(!4> /4.2* 1*-;!4* /,!.3 7/;!.!-&;>(*&.4*33 A&3 3.!;;1!3.!4>0!32*1 <5.2* >(*&.*3.&-.!=!.5 !4 &;;!4.*;;*-.0&;7&.23 * 2&1 &4 *10-&.!/4 <*,!..!4> 2!3(&4D &41 !4-;01!4>&--/(1!4> ./ .2*4!&4 -03./6 </.2 >564&3.!-&41 603!-&;-0;F .0(* <0.,(/6.2* ,!(3.2* -/43!3.*4.;5 2*;1 &;//,(/670<;!-;!,* !4 37!.* /,.2* 406*F (/03 &1=&4.&>*3 A2!-2 2!3 <!(.2 &41 -/4F 4*0!/43 A/0;1 2&=* !430(*1 2!6 !4 30-2 & -&(**((!.;&3 ,/(!43.&4-* A2/ A&3 &,.*(A&(13 .2* ;*&1*(/,.2* 2!(.5 A&3 2!3 6/.2*(3 -/03!4 ,.*(&.,!(3.1*=/.!4> 2!6 3*;,./ 7/*.!-&;3.01!*3 &41 2!6 3*;,-/4!" 7/3!4> 7/*.(5 2* 3//4 .//D 07 72!;/3/725 4 .2!3 30<K*-. 2* !3 3&!1 ./ 2&=* (*-*!=*1 .2* !43.(&-.!/43 /,(.5;03 &,/;;/A*(/, *(&-;!.03 .2*&>*/,.A*4.5 2* *4.*(*1 .2* -!(-;* /,/-(&.*3 1!3-!7;*3 &41 3//4 .//D &7(/6!4*4.7/3!.!/4 &6/4> .2*6 4 RTT &,.*(/-(&.*3 1*&.2 8&.A2!-2 2* A&3 7(*=*4.*1 <5 !;;4*33 ,(/6 <*!4> 7(*3*4.9 2* A*4./ > (&./2!3/;1,*;;/A 1!3-!7;* 0-;!1*3 &41 .2*4-* !3 3&!1./2&=* (&=*;;*1 ./ 5(*4* &41 >57. * -*(.&!4;5 37*4. 3/6* .!6* !4 &>4& (3*-!& A!.2 .2* 5.2&>/(*&43 (-25.&3 /, (*4.06 &41 !63*..3/,* -(!&41 .2*4-* =!3!.*1 5(&F -03* /4 .2* !4=!.&.!/4/,.2* ;1*(!/45F 3!03 !3 3.(/4> !41*7*41*4-* 2/A*=*(&41 2!3 !4.!6&.*,(!*4132!7 A!.2 !/453!03 <(/.2*("!4";& .2* 4/<;* !/4 3//4 1(*A 07/4 2!6 .2* 6!3.(03./,.2* .5(&4. 2* 3./(5 (*;&.*3 .2&.2* A&3 3/;1 &3 &3;&=* !4./ B>!4&<5 /(1*(/, !/453!03 &41 (&43/6*1 <5 &,(!*41 *.0(4!4>./ .2*43 &</0. RR 2* *3.&<;!32*1 !4 &>&(1*4 4*&(.2* -&1*65 8&>5648301 6 3/4&6*1 &,.*(.2* 2*(/ -&1*6039 !4 .2* 4/(.2"A*3.7&(./,.2* -!.5 &72!;/3/72!-&;3-2//;/=*(A2!-2 2* 7(*3!1*1 ,/(,(.5 5*&(3 *(* 2* ;!=*1 046&((!*1 .&D!4> 4/7&(. !4 .2* &,,&!(3 /, .&.* <0. 1*=/.!4> 2!3 *4*(>!*3 *0-;03!=*;5 ./ .2* 70(30!. /, D4/A;*1>* !4.*((07.*1 /4;5 <5 .A/K/0(4*53 ./ !-!;5 2* ,!53. /,.2*3* 2* 041*(.//D !4 ?U /4 .2* &--*33!/4 /,.2* 5/04>*(!/453!03 !4 /(1*(!4 -/4K04-.!/4 A!.2 !/4 ./ A!4 .2* 5/04> (0;*(./ .2* -&03* /, 72!;/3/725 &41 !410-* 2!6 ./ -/4=*(. .2* .5(&445 !4./ &-/43.!.0!/4&;;5 /(>&4!Q*1 6/4&(-25 2!3 &..*67. -/67;*.*;5 ,&!;*1 &41 .2* /4;5 (*30;. A&3 .2* <&4!326*4. /, !/4 !3 3*-/41K/0(4*5 A&3 !4 ?@ !3 /<K*-. A&3 ./(*-/4-!;* !/453!03 A!.2 !/4 <0. !4 .2!3 2* A&3 *:0&;;5 0430--*33,0;* !4 ,&-. 2!3 /A4 ;!,* A&3 !4 1&4>*(&41 2* &3 /4;5 3&=*1 <5 .2* !4.*(-*33!/4/, (-25.&3 /, &(*4.06 /A*=*(.2* &--/04.3 /, .2*3* ;&3. A/K/0(4*53 &(* ;!..;* ./</1*7*41*1 07/4 *3!1*3 .2* 4&((/A*(-!(-;* /, 2!3 !6 6*F 1!&.* 707!;3 [&6/4> A2/6 .2* 6/3. -*;*F <(&.*1 &(* (!3./,;* 7*03!7703 2!3 3!3.*(3 3/4 &41] ?4?-(D.*3 [.2* -&1*65 A&3 &;3/ ,(*:0*4.*1 <5 &;(>* 406*(* /, *10-&.*1 6*4 &41 *=*4 A/6*4 .5 !3 3&!1 .2&.;&./3 &1=!-* !4 7/;!.!-&;6&..*(3 A&3 &3D*1 4/. /4;5 <5 3.&.*36*4 &.2/6* <0. *=*4 <5 ,/(*!>4 .&.*3 !3 .*&-2!4> A&3 >!=*4 7&(.;5 !4 .2* 32&7* /, !4,/(6&;-/4=*(3&.!/4 7&(.;5 !4 -/43*-0.!=* &41 353.*6&.!-;*-F .0(*3 /4 72!;/3/72!-&; 30<K*-.3 =*4 ./

2!3 /;1 &>* 2!3 &-.! 1.5 A&3 &4A *&(!*1 &41 2* A&3 -&((!*1 /E <5 &4 *&35 1*&.2 8!. !3 3&!1 A2!;* &-.0&;;5 *4>&>*1!4 -/67/3!.!/49 !4 .2* *!>2.5",!(3. 5*&(/, 2!3 ^,* 8 CR9 * A&3 <0(!*1 !4 .2* 4*!>2</0(2//1 /, .2* -&1*65 A2*(* 2!3 ./6< 3.!;; *0!3.*1 !4 .2* @41 -*4.0(5 !3 7;/. /, ;41 (*. 6&!..*1 4*&(;5 &.2/03&41 5*&(3 !4 .2* 7/33*33!/4 /, .2* ;&./4!-3-2//;

3 A/(D3 /, ;&./ .2!(.5"3!0 A(!.!4>3 !4 ,!,.5"3!0 </<//D3 8.2* .2!(.**4 ;*..*(3 <*!4>3 (*-D/4*1 &3 /4*9 2&=* <**4 2&41*1 1/A4 ./ 03 2*3* A*(* 1!=!1*1 <5 2(&35;;03 & */" 5.2&>/(*&4 /, .2* .!6* /, !<*(!03 !4./ 4!4* .*.(&;/>!*3 &3,/;;/A3 8$9 9 (:2 (1: $, (8@9 $ +((, / 2 8 9 , " , : 2 , (8C9 < ' ' " ' ' ' (" 8V9 +(1 $; (; : 8?9 9 (:2 , & 1/ 6 1 " 8U9 ' ' ' " - " 8R9 $ (7 8.*4 <//D39 + $ 8T9 " ; @ 8.A*;=* <//D39 < "/ ; *3!1*3 .2*3* *!>2.5 /6*(A(!.!4>3"<*&(2!3 4&6*" <0. .2*3* !=*(* 6&(D*1 &3 370(!/03 *=*4 !4 &4-!*4. .!6*3 , .2* >*40!4* A(!.!4>3 /, ;&./ 4/4* 2&=* <**4 ;/3. /A!4>3 ./ .2* ,&-. .2&. .2* 3.015 /, .2*6 A&3 D*7. 07 A!.2/0. &<(*&D .2(/0>2 &;; .2* !4.*(=*4!4>-*4.0(!*3 <0. &40 6<*(/, .2* &</=*"6*4.!/4*1 &(* /, 6/(* /(';*33 1/0<.,0;&0.2*4.!-!.5 .2/0>2 .2*(* !3 4/. !4 &;; -&3*3 30,,!-!*4. *=!1*4-* ./ 7(/=* .2*!(370(!/034*33 *3!1*3 .2* ; &41 .2* 9 " 8&4 &77*41!0 ./ .2* ; -/67/3*1 <5 ;&./3 707!; 2!" ;!7703 /, 703 .2* A(!.!4>3 /, .2* ,/0(.2 .*.(&;/>5 &3 A*;; &3 .2* +(1 .2* " &41 .2* $ ((*-D/4*1 &3 041/0<.F *1;5 370(!/03 ,:0*3.!/4&<;* >*40!4*4*33 &;3/ !3 &3*(!*3 /, *7!>(&63 A2!-2 2&3 <**4 <&41*1 1/A4 041*(;&./3 4&6*

&45 &..*67.3 2&=* <**4 6&1* ./ &((&4>* .2* ;&./4!-A(!.!4>3 !4 .2* /(1*(/, .!6* <0. 04&4!6!.5 /4 .2* 30<*-.2&3 4*=*(<**4 &..&!4*1 4 /;1 .2/0>2 1!370.*1 .(&1!F .!/4 (*-D/43 .2* , (&3 .2* ,!(3. A2!;* .2* ; @ A2!-2 !3 3&!1 ./ 2&=* <**4 70<F ;!32*1 <5 .2* &,/(*3&!1 2!;!7703 &,.*(.2* &0.2/(3 1*&.2 &(* >*4*(&;;5 &-D4/A;*1>*1 ./ <* .2* ;&3. .2* 7 &;3/ <*;/4>3 &.&45 (&.* ./ .2* ;&.*(A(!.!4>3

2* A(!.!4>3 /, ;&./ &(* &6/4>* .2* >(*&.*3. 7(/10-.!/43 4/. /4;5 /, (**D ;!.*(&.0(* <0. /, .2* ;!.*(&.0(*/, .2* A/(;1 2*5 &(* *:0&;;5 &1 6!(&<;* !4 6&..*(&41 !4 ,/(6 -/6<!4!4>3 &3 .2*5 1/ ,0;4*33 &41 1*7.2 /, .2/0>2. A!.2 .2* 2!>2*3. 6&3.*(5 /, 3.5;* A2!;* &. .2* 3&6* .!6* .2*5 &(* 7*4*.(&.*1 <5 .2* 4/<;*3.37!(!. 2* ,/(6 .2(/0>2/0. 2&. /, 1!&;/>0* &41 !4 .2* 1!&;/>0*3 ;&./ 2!63*;, 4*=*(&77*&(3 &3 &37*&D*(<0. 2* 6&D*3 2!3 6&3.*(/-(&.*3 .2* !4.*(7(*.*(/, 2!3 =!*A3 2* 1(&6&.!-3*..!4>3 &41 *0*-0.!/4 .2* 1*;!4*&.!/4 /, .2* -2&(&-.*(3 .2* ;&4>0&>* 7*(,*-.;5 &1 03.*1 ./ .2* 7*(3/4&;!.5 /, .2* 37*&D*(3 &41 ./ .2* -!(-063.&4-*3 3077/3*1 [4/A ,&!.2,0;;5 (*7(/10-!4>.2* 3!67;* 6&44*(/, *07(*33!/4 030&, !4 -/4=*(3&.!/4 4/A >!=!4>3 -;*&(*07(*33!/4 ./ .2* .2/0>2. A!.2 4!;.2* !4-!3!/4 /, 1!&;*-.!-3 4/A (!3!4>3 ./ 7!*.!-*;*=&.!/4 [&;;32/A .2* 6/3. -/430 6 6&.* &(.&41 6&D* !. 1/0<.,0;A2*.2*(!4 ;&./ A* 32/0;1 (&.2*(&16!(* .2* &(.!3.&41 .2* 7/*. /(.2* 72!;/3/72*(4 2!3 .*&-2!4>3 &41 2!3 3-2//; *

$1.%*'#9 A&>/4 # "

;&0.03 #+ 2* >(*&.*3. /, .2* /6&4 -/6!-7/*.3 </6 @VC ' (&. &(3!4& !4 6<(!& /, 206<;* *0.(&-.!/4 &=!4>* *&(4*1 3/6* 6/4*5 <5 ,!41!4>* *6F 7;/56*4.&. /6* &6/4>A/(D6*4*4>&>*1 <5 7*(3/43 A2/ >&=* .2*&.(!-&;* (*7(*3*4.&(.!/43 2* *. 07 &<03!4*33 /0.3!1* .2* -!.5 <0. !4 .2!3 041*(.&D!4>2* ;/3.2!3 7(/7*(.5 *.0(4!4>./ /6* 2* ,*;;!4./30-2 7/=*(.5 .2&. 2* A&3 /<;!>*1 ./ .&D* 3*(=!-* A!.2 & 6!;;*(&41 *&(4 A&>*3 <5 .0(4!4>& 2&41" 6!;; . A&3 2*(* .2&. 2* <*>&4 ./ A(!.* -/6*1!*3 !4 =*! 3* &41 !4 ;&.*(.!6*3 .2(** 7!*-*3 A*.3 3.!;; D4/A4 A2!-2 2* A&3 3&!1 ./ 2&=* -/67/3*1 A2!;* .203 *67;/5*1 * -/4.!40*1 &-.!=*;5 A(!.!4>3 ./ &4 *0.(*6* /;1 &>* &41 1!*1 !4 ;RC

!3 7(/10-.!=!.5 603. 2&=* <**4 &;./F >*.2*(*0.(&/(1!4&(5 *=*4 !,' &/-/43!1*(&<;* 7/(.!/4 /, .2* $ N 7!*-*3 A2!-2 A*(* D4/A4 <5 .2* &4-!*4.3 041*(2!3 4&6* A*(* 4/.(*&;;5 2! A/(D , (4/./4;5 A*(* .2* 7!*-*3 /,'& -*(.&!4 ;&0.03 (*-D/4*1 &3 2!3 /4 &-F -/04./, .2* 3!6!;&(!.5 /,4&6* <0. 406*(/03 -/6*1!*3 <5 ,/(>/..*4 7/*.3 A2/ A/(D*1 !4 2!3 3.5;* A*(* >*4*(&;;5 &3-(!<*1 ./ 2!6 &3 .2* 6/3.7/70;&(/, 7/*.3 /. /4;5 A&3 2* &, &=/0(!.* A!.2 .2* 70<;!-& &41 ;/4> (*6&!4*1 3/ *=*4 !4 !-*(/3 .!6* 7!*-*3 <5 2!6 A(* 70. 07/4 .2* 3.&>*9 <0. 2* &;3/ *&(;5 &..(&-.*1 .2* !4.*(*3. /, 3-2/;&(3 ./ A2/6 2* ,,*(*1 &(!-2 6&.*(!&; ,/(3.015 !4 .2* 1*7&(.6*4.3 /, 72!;/;>5 -(!.!-!36 &41 .2* 2!3./(5 /, ;!.*(&.0(* 7*-!&; &41 7*-0;!&(&..*4.!/4 A&3 7&!1 ./ 2!6 <5 &((/ A2/ -/67/3*1 3*=*(&; A/(D3 &</0. 2!6 &41 *3.&<;!32*1 .2* -;&!63 /, @$ -/6*F 1*3 &3 041!370.*1;5 >*40!4* , .2*3*

H &(((/4!&4 7;&53 I @ 3.!;; 7/33*33 @N 6/(* /(;*33 -/67;*.* &41 /, .2* ;&3. .2* = . -/43!1*(&<;* ,(&>6*4.3 2*3* *0.&4. 7;&53 8!4 &11!.!/4 ./ A2!-2 .2*(* &(* &40 6<*(/, ,(&>6*4.3 /, ; /3.7;&53] G/;1*3. -/67;*.* 6/406*4.3 /, E/6&4 ;!.*F (&.0(* 2*5 2&=* 4/. -/6* 1/A4 ./ 03 :0!.* !4 .2*!(/(!>!4&;, /(6 <0. <*&(6&4!" !/;1 .(&-*3 /, 2&=!4> 041*(>/4* (*=!3!/4 G/4 .2* /--&3!/4 /, (*7(*3*4.&.!/43 &,.*(.2* 7/*.3 1*&.2 *37*-!&;;5 !4 .2* ;&..*(2&;, G/, .2* @41 -*4.0(5 (2!3 !3 7&(.!-0;&(;5 .2* -&3* A!.2 .2* 7(/;/>0*3 A2!-2 &(* 7(*F ,!0*1 ./ 6/3./, .2* 7!*-*3 2* 7;&53 2&=* <**4 2&41*1 1/A4 !4 .2* ,/;;/A!4> /(1*(M (M " 8-/6*15 /, &33*39 8-/6*15 /, & 7/.9 $ 8.2* 7(!3/4*(39 $ B$ " $ 8-/6*15 /, & -2*3.9 9 (8-/6*15 G/, >2/3.39 " (" 1 8.2* <(&>>&(.9 8.(&1*(9 , , 2 " (&(.2&>!4!&49 *+3&8.2* *(3!&49 7 " 8.2* -&<;*9 + " 8.2* .2(** -/!439 , " 8.2* >(06<;*(9 = 8 /6*15 /, & .(04D9 2* .!.;*3 (*,*(3/6*.!6*3 ./ -2&(&-.*(3 3/6*.!6*3 ./ .2* &-.!/4 /, .2*7!*-* ,'3*=*(&;/, .2*6 &(* -/67&(&.!=*;5 A*&D !4 7;/. &41 -2&(&-.*(1(&A!4> 3.!;; 4/. & ,*A <*;/4> ./ .2* ,!(3. (&4D 0-2 &(* .2* ("& (8.2* ,/(6*(.2* 6/1*;/, ;!*(* 3 .2* ;&..*(/, 2&D*37*&(* 3 $: 9 $ 1 , 7 " &41 + " 2* !3 (*6&(DF &<;* &3 &4 !43.&4-* /, -/6!- .(*&.6*4. /, & 65.2!-&; 30<K*-. 2* !3 /4* /, .2* /;1*3. 7!*-*3 .2* (A&3 <(/0>2. "/0. !4 @NN .2* , !4 $T@ .2* + V " &</0. $TN .2* + " &;3/ 1&.*3 ,(/6 .2* *0.(*6* /;1 &>* /, .2* 7/*. 2/0>2 ;&0.03 ,/;;/A*1 (**D 6/1*;3 30-2 &3 2!;*6 4 !72!;03 &41 4&41*(2* 1!1 4/. 3!67;5 .(&43;&.* 2!3 /(!>!4&;3 <0. A/(D*1 .2*6 07 A!.2 >(*&. ,(**1/6 &41 4&.!/4&;!3*1 .2*6 <5 &11!.!/43 /, 2!3 /A4 * !3 & 6&3.*(!4 .2* 03* /, ;&4F >0&>* 6*.(* &41 6&.*(!&; &41 7/33*33*3 &4 !4*0 !&03.!<;* &41 704>*4. !, /,.*4 -/&(3* A!. &. 2&. 2* 041*(3.//1 2/A ./ 2&41;* 3*(!/03 &41 6/(&;30<K*-.3 !3 7(/=*1 <5 .2* $ &41 + " * 603. <* (*-D/4*1 &6/4> .2* >(*&.*3. >*4!03*3 /, 2!3 4&.!/4 [2* 4&6* /, .2* ! / ;&0.03 A&3 /4-* *(((/4*/03;5 >!=*4 ./ & 7;&5 A!.2 .2* &;.*(4&.!=* .!.;* /, .2* T & A(*.-2*1 7(/10-.!/4 /, .2* C.2 -*4.0(5 ;*<!3-;.06 2* /6&4 4&6* ,/(&1*-(** /, .2* / / 6/(* / ! 8 9 ;*<!3 7&(./, .2* 7/70;&.!/4/, /6* A2!-2 1*(!=*1 !.3 /(!>!4 6&!4;5, /(6 .2* -/4:0*(*1 &.!43 3*..;*1 /4 /6&4 .*((!F ./(5 <5 .2* D!4>3 0;;03 /3.!;!03 &41 0-03 &(.!43 .,!(3. .2*3* 7/33*33*1 /4;5 .2* 7&33!=* (!>2.3 /, -!.!Q*432!7 <*!4> *0-;01*1 ,(/6 &;, !.3 7(!=!;*>*3 &3 A*;, &3 ,(/6 3*(=!-* !4 A&(&41 ,/(6!4> &-/6F 6 04!.5 32&(7;5 3*7&(&.*1 ,(/6 .2* /;1 -!.!Q*43 .2* 7&.(!-!&43 4 7&(.!-0;&(.2*5 1!1 4/. 7/33*33 .2* (!>2. /,%-/4-;01!4> =&;!1 6&((!&>*3 A!.2 7&.(!-!&43 &;.2/0>2 .2*5 A*(* /.2*(A!3* *:0&; !4 6&..*(3 /, 7(!=&.* ;&A 2*4 <5 .2* -/43.!.0.!/4 /, *(=!03 0;;!03 .2*5 A*(* -/67*;;*1 ./ 3*(=* !4 A&(&41 ./ 7&5 A&(".&0*3 .2*5 /<.&!4*1 .2* (!>2./, =/.!4> A!.2 .2* 7&.(!-!&43 !4 .2* " ,.*(.2* *3.&<;!32 6*4./, .2* *70<;!- !4 ?$N .2* 7;*<*!&43 <*>&4 .2* 3.(0>>;* A!.2 .2* 7&.(!-!&43 A2/ A*(* .2*4 !4 3/;* 7/3F 3*33!/4 /, .2* 3*-0;&(&41 7(!*3.;5 /,,!-*3 2* &!6 /, .2* 7;*<*!&43 A&3 ./ 3*-0(* -/67;*.* *:0&;!.5 /, (!>2.3 &43A*(!4> ./ .2*!(*:0&;!.5 /, 10.!*3 4 !67/(.&4. *4>!4* !4 .2!3 3.(0>>;* A&3 .2* .(!<04&.* / .2* 7*/7;* # ' ' ' ' *3.&<F ;!32*1 !4 CT$ &3 A*;;&3 .2* (# " & K 2* 7;*<*!&43 2&1 .2* -2!*, A*!>2.!4 .2&. &33*6<;5 &41 &,.*(CCR !. A&3 !4=*3.*1 A!.2 .2* (!>2./, 7&33F !4> 1*-(**3 <!41!4> /4 .2* A2/;* 7*/7;* 6/4> .2*!(,!(3. &-:0!3!./43 A&3 .2* (!>2./, *4.*(!4> !4./ =&;!1 6&((!&>*3 A!.2 .2* 7&.(!-!&43 8CCV 9 4* &,.*(&4/.2*(.2* 7;*<*!&43>&!4*1 &16!..&4-* ./ .2* 6/3. !67/(.&4. /,,!-*3 /, .&.* &41 .2* 7(!*3.F 2//13 1/A4 ./ .2* 5*&(NN 37 .2&. /4;5 !43!>4!,!-&4. /,,!-*3 (*6&!4*1 (*3*(=*1 /(.2* 7&.(!-!&43 # 2*4 .2* 3.(0>>;* /, .2* /(1*(3 A&3 .203 3*..;*1 .2* /77/3!.!/4 <*.A**4 7&.(!-!&43 &41 7;*<*!&43 ;/3. !.3 7(&-.!-&; !67/(.&4-* 2* .A/ /(1*(3 A*(* -/67;*.*;5 <;*41*1 ./>*.2*(&41 .2* 7;&-* / .2* &(!3./-(&-5 /, <!(.2 A&3 .&D*4 <5 .2* &(!3./-(&-5 /, /,,!-* .2* 6*6<*(3 /, A2!-2 A*(* -&;;*1 (/6 .2!3 .!6* .2* 4&6* 7&33*1 ./ .2* ;/A*((&4D3 /, .2* 7*/7;* &3 -/4.(&3.*1 A!.2 .2!3 H4/<!;!.5 I ;*-.(06 ;*!&1*3 /(;*!&1*3 #6 2* 3*=*4 1&0>2.*(3 /, .;&3 &41 .2* -*&4"4567 2 ;*;/4* </6 /4 .2* (-&1!&4 6/04.&!4 5;;*4* 3!3.*(3 /, .2* 5&1*3 2* *;1*3. &41 6/3.<*&0.!,0; &.2 <*-&6* .2* 6/.2*(

G/ * 6 *3 <5 L*03 9 &41 + !1 / , &(1&403 &41 &-*1&*6/4 <5 .2 3&6 *
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!3 ,&6* &3 &4 &0.2/(' ! ,/041*1 7(!4-!F 7&;;5 07/4 2!3 , ; 2*3* 2* 7(/<&<;5 7(*7&(*1!4 /6* 041*(' .2* (*!>4

8$ 9' ' ^'

8 *;!*,'/4'.2*7*1*3.&;'/,'&'3.&.4*'/,' *6*.*(',/041!4 &>7*3!&" ;4&(/.' 041' 7' C9

(**-* A&3 &4 !4=*4.!/4 /,' *6*.*(' .2* >/11*33 /,' &>(!-0;.0(* A2/ .&0>2.' !.3 03* ./ (!7. ; 603 9(1' (!>!4&;;5 !.' A&3 -/43.(0-.*1 /,' &' 3.(/4>' 2//D"32&7*1 7!*-* /,' .!6<*(' A2*(*/,' .2* ;/4>*(' *41 8 (' ! / *' &.' ! 1 3*(=*1 &.' /4-* &3 7;/0>2".&!;' &41 7/;* A2!;* .2* /.2*(' &-.*1 &3 32&(*<*&6 8 (' 2 &.' 1 2!3 A&3 ,!..*1 !4 ,(/4.' A!.2 .2* 32&(* 8 (' * &.' # 1 &41 <*2!41 A!.2 .2* 07(!>2.' 7;/0>2".&!;' 8 (' " * &.' 1 . .2* *41 /,' .2* 7/;* A&3 &,,!0*1 .2* 5/D* !4 A2!-2 .2* /0*4 /(' 60;*3 <5 A2!-2 !.' A&3 ./ <* 1(&A4 A*(* 2&(4*33*1 9 -0.39 *3!1*3 .2* 4&.0(&;' 2//D"32&7*1

^' ^

&>&!43.' *(3*03' /,' &-*1/4!&'2*'&..(&-.*1' .2*' 3037!-!/4' /,' .2*' /6&43'&41' A&3'/4*' /,' .2*' $NNN' 4/<;*' -23*&43' A2/' !4' $??' A*(*' .(&437/(.*1' ./' /(4*'&3'2/3.&>*3'&41' 1*.&!4*1' .2*(*' ,/(' 3*=*4.**4' 5*&(3' 4' /(4*'<5'=!(.0*'/,'2!3'2!>2'-0;.0(*'2*'A&3' &16!..*1' ./' .2*' 6/3.'1!3.!4>0!32*1' 2/03*3' !4'7&(.!-0;&(' ./' .2&.'/,'1 6 ;;03' &0;03'.2*' -/4:0*(/(' !4' .2*' &-*1/4!&4' &!5"A2/' *4.(03.*1' 2!6' A!.2' .2*' *10-&.!/4' /,' 2!3' 3/43' &<!03' &41' .2*' 5/04>*(' -!7!/' *' A&3'/4' .*(63'/,' .2*' 6/3.'-/(1!&,'(!*4132!7' A!.2'.2*';&..*('A2/3*'-/043*;;/(' 2*'<*-&6*' 2(/0>2' -!7!/3' !4.*(-*33!/4' !4'$?N' ;/;5F <!03'/<.&!4*1' ;*&=*' ./' (*.0(4' ./' 2!3' 2/6*' A!.2' .2/3*' /,' .2*' -2&*363'A2/' 3.!;;' 30(F =!=*1' 0.' !4' .2*'=*(5'4*0.'5*&('2*'A*4.' A!.2'2!3',(!*41' ./' ,(!-&'&41'A&3'7(*3*4.' &.' .2*' -&7.0(*' /,' &(.2&>*' $C?' ' ' ,.*(' .2*' 1*3.(0-.!/4' /,' /(!4.2'!4' .2*'3&6*'5*&(' 2*' (*.0(4*1' ./' 2!3'4&.!=*' ;&41'&41'6&1*' 03*' /,' 2!3' -(*1!.' A!.2' .2*' /6&43' ./' ;!>2.*4'&3',&(' &3' 2*' -/0;1' .2*' ;/.' /,' 2!3' 04,/(.04&.*' -/04.(56*4' 2*4' "(**-*' A&3'-/4=*(.*1' !4./' &' /6&4'7(/=!4-*' 2*' A&3'*4.(03.*1' A!.2' .2*' 1!,,!-0;.' .&3D' /,' /(>&4!Q!4>' .2*'4*A',/(6'/,' >/=*(46*4.'!0' .2*' (**D' ./A43'&41'!4' .2!3' /,,!-*' >&!4*1' ,/(' 2!63*;,' .2*' 2!>2*3.'(*-/>4!.!/4' </.2' ,(/6' .2*' -/4:0*(/(3' &41' ,(/6' .2*' -/4F :0*(*1' .2*' ;&..*(' (*A&(1!4>' 2!3' 3*(=!-*3' <5'3*..!4>'07'3.&.0*3' ./' 2!6'&41' <5'/.2*(' 6&(D3' /,' 2/4/0(' f ;/5<!03'9 ' 0;' $N*' &03&4!&3'=!!!'T' N' U'CC'CR' 2*' 7*1*3.&;' /,' 30-2' &' 3.&.0*' 2&3' <**4' 1!3-/F =*(*1' &.' ;567!&g' 2*' 30--**1!4>' 5*&(3' 2*' 3**63' ./' 2&=*' 37*4.' !4' /6*' *4>&>*1' /4' .2*' -/67;*.!/4' /,' 2!3' 2!3./(!-&;' A/(D' &41' /--&3!/4&;;5'041*(.&D!4>';/4>'K/0(4*53'* .2(/0>2'.2*' *1!.*((&4*&4'-/04.(!*3'!4'.2*' !4.*(*3.3' /,' 2!3' 2!3./(5'6/(*' 7&(.!-0;&(;5' A!.2' &' .1*A' ./' /<.&!4!4>' &-.0&;' /-0;&(' D4/A;*1>*' /,' 2!3./(!-&;' 3!.*3' ,.*(' .2*' 1*&.2' /,' 2!3' 7&.(/4'2*' (*.0(4*1' ./' (**-*' &41' 1!*1' !4' $@@' &.' .2*'&>*' /,' *!>2.5".A/' !4'-/43*:0*4-*' /,' /&' ,&;',(/6'2!3'2/(3* 0(!4>'2!3';/4>'3/K/0(4!4' /6*'2!3'3.015' /,' .2*'2!3./(5'&41'-/43.!.0.!/4' /,' /6*' &3' A*;;' &3' 2!3' 7*(3/4&;' *07*(!*4-*3' !437!(*1' 2!6' A!.2' .2*' -/4=!-.!/4' .2&.' .2*' /6&4' 7*/7;*' /A*1' .2*' 6&>4!,!-*4.' 1*=*;/76*4.' /,' .2*!('7/A*('4/.' ./' ,/(.04*' <0.' ./' .2*!(' /A4',!.4*33'&41' ./' .2*' *0-*;;*4-*' /,' .2*!(' 7/;!.!-&;' &41' 4&!;!.&(5'!43.!.0.!/43'&3'-/6F 7&(*1'A!.2'.2/3*' /,' /.2*(' .&.*3'&41'.2&.' .2*(*,/(*' .2*!(' (&7!1' (!3*' ./' A/(;1"A!1*' 1/6!4!/4' 2&1' <**4' !4' 3/6*' 6*&30(*' &4' 2!3./(!-&;'4*-*33!.5' 4'/(1*(' ./' *4;!>2.*4' 2!3'-/04.(56*4' /4' .2!3' 7/!4.' &41' .2*(*<5 ./'3077;5'.2*6'A!.2'&' -*(.&!4'-/43/;&.!/4' ,/(' .2*!(',&.*' 2*' -/67/3*1' 2!3' 4!=*(3&;' !3./(5'/,'.2*'7*(!/1'<*.A**4'@@N'&41'$C?H' '!4',/(.5'<//D3' ,' .2*3*' .2*',!(3.'./"' &(*'!4'.2*',,!(6'/,'&4'4./(10-.!/4'&41'>!=*' &'-/67*41!06'/,' *=*4.3'!4' .&;5' ,(!-&' &41' (**-*' ,(/6' .2*'1*3.(0-.!/4'/,' /6*' <5'.2*' &0;3'./' .2*' ,!(3.' 04!-' &('.203' (*-/(1!4>'.2*'(!3*'/,'.2*' /6&4'307(*6&-5' 2*',!(3.'6&!4'1!=!3!/4'8</!D3'!!!"0009'-/4F .&!4*1'!4'354-2(/4!3.!-' &((&4>*6*4.' .2*' /--0((*4-*3',(/6' @@N' ./' $?R" .2&.' !3' /,' .2*' .!6*' !4' A2!-2' /6*' A&3',/041!4>'!.3' A/(;1"A!1*' 1/6!4!/4' .2(/0>2' .2*' &41"' <&;!-' &-*1/4!&4' 5(!&4' &41' 7&4!32' A&(3' 2*' 3*-/41' 8</!6' 000!"0;9' 1*F 3-(!<*1' .2*' 6&!4.*4&4-*' &41' -/43/;!1&.!/4' /,' .2!3' 1/6!4!/4' &>&!43.' .2*' &..*67.3' ./' /=*(.2(/A'!.'!4' .2*'5*&(3'$?R"$C?' ' ,' .2!3' A/(D' /4;5'</D3'!"='2&=*'<**4' 7(*3*(=*1' !4' &' -/67;*.*',/(6' /,' .2*' (*3.'A*' 7/33*33' 6*(*;5',(&>6*4.3'&41'*7!./6*3' 2!3' !3' *37*-!&;;5'./'<*' (*>(*..*1'!4'.2/3*'7&(.3'!4' A -2' /;5<!03'4&((&.*3*=*4.3'A2!-2'-&6*' A!.2!4'2!3'/A4'*07*(!*4-*' *' !3'.2*',!(3.' (*7(*3*4.&.!=*'/,'.2&.'7&(.!-0;&(' .57*'/,'2!3F ./(!-&;'-/67/3!.!/4'A2!-2'1/*3'4/.' 6*(*;5' (*-/04.' .2*' 3*=*(&;',&-.3' &41' 72*4/6*4&' !4' -2(/4/;/>!-&;' /(1*(' <0.' >/*3' <&-D' .<' .2*' -&03*3' /,' *=*4.3' &41' 3*.3',/(.2' .2*!(' (*30;.3' !3' A/(D' (*3.3'07/4'&'D4/A;*1>*' /,' .2*' &(.' /,' A&(' &41' /,'7/;!.!-3'30-2'&3',*A' &4-!*4.' 2!3./(!&43'7/33*33*1" 07/4'&' -&(*,0;'*O&6!4&.!/4' /,' .(&1!.!/4'-/410-.*1' A!.2'D**4'-(!.!-!36*' 7&(.;5'&;3/'07/4'A2&.' 2*' 2&1' 2!63*;,' 3**4'&41'07/4'.2*'-/660F 4!-&.!/43'/,' *5*"A!.4*33*3'&41'&-./(3'!4'.2*' *=*4.3' .' 3*.3',/(.2' .2*' -/0(3*' /,' /--0(F (*4-*3' A!.2' -;*&(4*33' 7*4*.(&.!/4' 3/041' K01>6*4.' &41';/=*' /,' .(0.2' &41' &6/4>' .2*' -!(-04!3.&4-*3'&,,*-.!4>'.2*'(*30;.';&53' *37*-!&;' 3.(*33' /4' .2*' >*/>(&72!-&;' -/41!F .!/43' .' <*;/4>3'.2*(*,/(*' ./' .2*'>(*&.*3.' 7(/10-.!/43' /,' &4-!*4.' 2!3./(!-&;' A(!.!4>' .2/0>2'!4'(*37*-.'./';&4>0&>*'&41' 3.5;*'!.' 1/*3'4/.'&..&!4'.2*'3.&41&(1'/,' ..!-'7(/3*' 2*';&4>0&>*'!3'/.*4' A&4.!4>'!4' 70(!.5' &41'.2*'3.5;*'3.!,,'&41'!42&(6/4!/03 1;5<03' ^!4>'/,' /(!4.2',/3.*(",&.2*(' /,'8 1!703'# /;5-2(/65' 2*' &4-!*4.' 7(&-.!-*' /,' -/;/0(!4>'7!*-*3' /,' 3-0;7.0(*'&3' A*;;' &' -*(.&!4'7/(.!/43'/,'.2*'*0.*(!/('&41'!4.*(!/(' /,'<0!;1!4>3' 8 **' ' '&.'*41 9 !51!.,!3' 8 &. " (', : ' *0.' ./'2!3'3/6*A2&./;1*('-/4.*67/(&(5' 2!1!&3' .2*' 6/3.'&16!(*1'3-0;7./('/,'&4.!:0!.5' I' A&3'&'4&.!=*' /,' (>/3'&41';!D*' 2!1!&3'&' 707!;',' > ;&1&3' !3'4&6*'6&(D3'&4*7/-2

!4 .2* 1*=*;/7 6*4. / , (**D &(. /A!4> ./ 2!3 2&=!4> ;&!1 1/A4 (0;*3 /, 04!=*(3&; &77;!-&.!/4 A!.2 (*>&(1 ./ .2* 7(/7/(.!/43 /, .2* 20 6&4 </15 !4 !.3 6*&4 3.&41&(1 /, 2*!>2. &>* *.- 4 -;/3* &--/(1&4-* A!.2 .2*3* (0;*3 2* ,&32!/4*1 & .57!-&; ,!>0(* .2* 'C/ : (/ &7/A*(,0; 5/0.2 A!.2 &7*&(!4 2!3 2&41 .2!3 ,!>0(* A&3 -&;;*1 .2* $ " "&41 ,/(&;/4> .!6* 3*(=*1 &3 &H 3.&41&(1 I ,/(30--**1!4> &(.!3.3 f ;!45 > 000!= VVg 2* (0;*3 A2!-2 2* 7(&-.!-&;;5 &77;!*1 !4 .2* $ " "* 2* &;/3* .,/(.2 .2*/(*.!-&;;5 !4 & A(!..*4 A/(D P &;*4 !4 =*(<*-D 3 ("BTVR TVT$.!3 &;3/ 3&!1 /, 2!6 .2&. A2*4 2* 6&1* 3.&.0*3 !4 &4 &..!.01* /, (*3. !43.*&1 / , 1!=!1!4> .2* A*!>2./ , .2* </15 *:0&;;5 2*.A**4 .2* .A / , **. &--/(1!4> ./ .2* -03 ./6 A2!-2 2&1 2!.2*(./ 7(*=&!;*1 2* !4.(/ 10-*1 .2* 7(&-.!-* / , -&03!4> .2*6 ./ (*3. "07/4 " , //. A!.2 .2* /.2*(//. ;!>2.;5 (&!3*1 A2*(*<5 .2* !67(*33!/4 /, >(&-*,0; *&3* &41 -&;6 (*7/3* A&3 ,/(.2* ,!(3. !6* ,0;;5 7(/10-*1 f ;!45 V?$ 0-*7. .2* -*;*<(&.*1-2(53*;*72&4.!4*-/;/3&;3.&.0*/, *(&8:".!9 A2!-2 2* 6&1* ,/. .2* .*67;* /,

2*&1 f ;!45 ; - VV 0-!&4 A(" $Rg &41 &4 Q " A2!-2 A&3 7(*,*!!*1 *=*4 ./ .2&./, 2!1!&3 f ;!45 ? g 2*3* 3.&.0*3 6&5 3.!;;<* !1*4.!,!*1 !4 -/7!*3 /, &;&.*(.!6* # -0. &41 -/67&(* -0. 041*(& R * &;3/ A/(D*1 &3 &4 &(-2!.*-. 2* .2*&.(* &. 7!1&0(03 8/, A2!-2 -/4 3!1*(&<;* (*6&!43 3.!;;* *0!3.9 &41 .2* -!(-0;&(3.(0-.0(* -&;;*1 .2* +(/ &41 .2* .*67;* /, 3-;*7!0 f &03&4!&3 !!! @U ; 7;&4 !4 &*1*D*(3 6 7 @C$g &(* 4/A >*4*(&;;5&33!>4*1 ./ .2* 5/04>*(/;5-;!.03 , : (j "1 A&3 & 707!;/, .2* (>!=* 3-0;7./(&0-51*3 6/4> 2!3 A/(D3 A&3 & .&.0* /, .2? &.2;*.* 1 8 &03&4!&3 =! ? @9 &41 /, N 8 , (= &. > ; 71;;3 !4 A2!-2 .2* >/1 A&3 (*7(* 3*4.*1 A!.2 3/6* /, .2* &..(!<0.*3 /, !/45303 8 V =!!! $ C9 2* 3.&.0*3 /, N (&. (>/3 # !! B $9 &41 .2/3* /, ; " /4 /04. 5-?4? 4*&((>/3 8 @C `V9 6&5 7/33!<.5 <* &33!>4*1 ./ .2* *;1*(/;5-;!.03 8 =*(F <*-D ("TC$" 9 f g 1;51*-.;3 /4 /, &>4>3 D!4> /, .2* !3;&41 /, (!7203 &..*67.*1 ./ -/67*; 4&* ./ 6&((5 2!6 <0. A&3 .0(4*1 !4./ & 3./4* <5 2*(3/4 *(3*03 ! <5 .2* 3!>2./ , .2* 2*&1 /, 1,;3& 1;51*0*>3 8 &. , - (51/(03 8$9 H $ &41 &(6 4!& ,&.2*(/ , &<1&-03 &41 >(*&.F >(&41,&.2*(/ ,8 1;703 8@9 /04>*3. " , &41 / , & .21* 2!3 ,&.2*(3 ,&=/0(!.* 3/4 * A&3 D!;;*1 A2!;* 5*. & </5 <5 -2!;;*3 2* .(&>*1!&43 6&D* 2!6 .2* 3/4 / , (!&6 &41 *-;!<& A2/ <*,/(* .2* ,&;;* / , (/5 -/6F 6!..*1 2!4! A!.2 6&45 .(*&30(*3 ./ .2* -&(* / , .2*!(>0*3.",(!*41 .2* 2(&-!&4 D!4> !56*3./(8/(/;56 4>3./(9 ,.*(.2* -&7.0* / , (/5 /;56*3./(70.3 .2* </5 ./ 1*&.2 !4 /(1*(./ >*. 7/33*33!/4 / , .2* >/;1 &41 .2(/A3 .2* </15 !4./ .2* 3*& 2* A&=*3 -&3. !. 7 /4 .2* (/K&4 32/(* &41 2*(* *-0<&,!413 !. K03. &3 1;50*4C !3 /4 .2* 7/!4. /, <*!4> 3&-(!,!-*1 0./, (*=*4>* 32* A!.2 .2* 2*;7 /, .2* -&7.!=* (/K&4 A/6*4 D!;;3 .2* .A / -2!;1(*4 /, .2* 60(1*(*(&41 <;!413 /;56*3./(2!6F 3*;, --/(1!4> ./ &4/.2*(=*(3!/4 ;; 4* (!&6 3 1&0>2.*(&41 /;56*3./(3 A!,* <(!4>3 07 .2* </.2*(A2!/ 2&3 <**4 -/6F 6!..*1 ./ 2*(-2&(>* &3 2*(/A4 3/4 A2!;* 32* >!=*3 07 2*(-6 ;1 72;;03 8/(!75 ;03 63.*&1 /, /;51/(03 2* (**D3 A2/ A!32 ./ *0.*(6!4&.* .2* (&-* /, (!&6 A!4 /=*(/;56*3./(7(/6!3!4> 2!6 .2* 2&41 /, ;*-.(& &41 & ;&(>* 7(*3*4. /, 6/4*5 !4

.2* >/11*33 &. (>/3 , &03&4!&3 !! $U `Cg A2*4 !. .=&3 (*<0!;. &,.*(& ,!(* !4 C@ (2* 7(/10-*1 3.&.0*3 !4 <(/4Q* &;/4* &41 &;6/3.*0-;03!=*;5 /, 6*4 !4 .2* 7(!6* /, 5/0.2 30-2 &3 .2* 5 : (&;(*&15 6*4F .!/4*1 .2* 5 " &5/0.2 /, 3/,.*(;!4*&6*4.3 A2/ !3 .5!4> & <&41 (/041 2!3

(*.0(4',/(' .2*' 60(1*(' /,' /;51/(03' /;5"
6*3./(' .2*4' 60(1*(3' 2!3' /A4' 3/4' &41' !3'
<;!41*1' &41' D!;;*1'<5' ;!/4*
8 9' ' 6 ' /,' .2*' 3-2//;' /,'
2/1*3' &0.2/(' 8!4' -/4K04-.!/4' A!.2' >*"
3&41*(' &41' .2*4 1/(039' /,' .2*' -*;*<(&.*1'
>(/07' /,' &1- /4'# B
1;5>41.03' 2*' -*;*<(&.*1' (**D'
7&!4.*(' /,' .2*'!3;&41'/,' 2 3?3' *' A/(D*1'
-2!*,;5' !4' .2*43' A2!.2*(' 2*' 2&1' <**4'
!4=!.*1'<5' !6/4'&</0.'C?N' '&41'A2*(*'
2*' (*-*!=*1'.2*' -!.!Q*432!7' !3' 6/3.'-*;*F
<(&.*1' 7&!4.!4>3' A*(*' .2*' $ ' '+ :'
&41'.2*' 5 " ' ' : ' " ' '!4'
.2*' 2&;,' *(*-.*1' e' .2*' 4!1!&43'&.' *;72!'
*7/33*33'&'1*3-(!7.!/4'/,'.2*'6'!4'-/43!1*(F
&<;*' 1*.&!;' <5' &03&4!&3' fO' @V" $g' .2*('
-*;*<(&.*1'7&!4.!4>3' <5'2!6'8.2/0>2'3*=*(&;'
/,'2!3'-/4.*67/(&(!*3'A*(*'&33/-!&.*1'A!.2'
2!6'!4'.2*!(' *0*-0.!/4$' A*(*'./' <*' 3**4' !4'
.2*' '/*-!;*'.2*' $ ' '+ :'&41'
.2*' ' ' ('" f,?' $Vg' &41' !4' .2*'
.*67;*3'/,'.2*' !/3-0(!' W ' $R' \' $g' &41'/,'
2*3*03' &.' .2*43' 2/0>2' 2!3' A/(D3'
A*(*' /4;5' .!4.*1' /0.;!4*3' .(&-*1' 07/4' &
-/;/0(*1' <&-D>(/041' A!.2/0.' 32&1!4>' &41'
A!.2/0.' &45' 7*(37*-.!=*' &41' 3D*.-2*1' &3'
!.' A*(*' !4' 3!67;*' (*;!*,' &;;' /4' .2*' 3&6*'
7;&4*' 3.!;;' 2!3' -;*&(' (25.26!-&;' -/67/3!F
.!/4' .2*' 1*;!-&-5' /,' 2!3' 1(&A!4>' .2*' !6F
7(*33!=*4*33'/,'2!3'-/4./0(3'&41'.2*'4/<!;!.5'
/,'2!3',;>0(*3'A*(*' 2!>2;5'-*;*<(&.*1'f =*(F
<*-D 3' (" ' $N?U"$NUTg
1;525644;&'8/(, : " ' 2*' 03*'/,'
3*(!/03'3/4>3'/,'&1/(&.!/4' # ' 0)
1;KB!103' /4' /,' /*(&403' >(&413/4'
/,' <&3' >(*&.">(&413/4' /,' ;&6723'
,&.2*(' /,' 0-2*4/(' 3.5-(,..!&'&41' &4./'
;!D*' 2!3' &4-*3./(' &' -*;*<(&.B' 3**(' A2/'
,;/0(!32*1' &--/(1!4>' ./' 1!,,*(*4.' &--/04.3'
'*!.2*(' &.' /(!4.2'/(' (>/3'/(' >B(&' /'
2!3' 3/4' 2*' 7(/72*3!*1' 2!3' 1*&.2' <*,/(*'
(/5' &41' .2*' 3/4' /,' !4/3' ;&0-03'
' @9' 2*' (&!3*1',(/6' .2*' 1*&1' .'
>&(&' 2' -;*&43*1' ;-&.2?13',(/6' .2*'
60(1*(' /,' 2!3' 3/4' &;;!7/;;3' &41' *(*-.*1'
.2*' .*67;*' /,' !/4.303
1;K,6*3./(' ' 2(&-!&4'D!4>' *' 60(F
1*(*1' ;51/(03'.2*' 3/4' /,' (!&6'A2/' 2&1'
<**4' *4.(03.*1' ./' 2!3' 7(/.*-.!/4' &41' A&3'
<;!41*1'<5' -0<&'&41'.2*' -&7.!=*' (/K&4'
A/6*4' #$' / 5-/ 039
1;564;&' ' / 5 !
/;54!-*3'8 (', " ' /4'/,'8 1!703'
&41' ;/-&3.*' A&3' 1(!=*4' /0.' /,' 2*<*3' <5'
2!3'</(/.2*(' .??-;*3'# ' .) ' &41' ,;*1'
./' 1(&3.03' # ' /,' (>/3'A2/' >&=*' 2!6'
2!3'1&0>2.*(' (>!&'!4'6&((!&>*'&41'<(/0>2.'
&</0.' .2*' *07*1!.!/4'/,'.2*' "' 1 "
+(' !4' /(1*(' ./' (*3./(*' 2!6' *' ,*;;'
!4' 3!4>;*' -/6<&.'A!.2' .*/-;*3' !3'</15'
A2!-2' 2&1' <**4' .2(/A4'./' .2*' <!(13' &3'
<0(!*1'<5' 2!3' 3!3.*(' 4.;> 4*'# ' !3'
3/4'A&3' 2*(3&41*('#
V$K.72V603' /4' /,' 3*!1/4' &41' .2*'
5672' 2??3&" .2*' /4*"*5*1' 5-;/73'A2/'
2*;1' 1533*03'7(!3/4*(' !4' 2!3'-&=*' &41'&.*'
3*=*(&;' /,' .2*' -/67&4!/43'04.!;' .2*' 2*(*'
6&1*' 2!6'1(04D' &41' <;!41*1' 2!6' &.*('
;*>*413'6&1*' 2!6'.2*';/=*(' /,' .2*'<*&0.!,0;'
5672'8BT;&.*J
V; (7.5-2?4' ' *(
1;K,B.>-2443' ' $
1;5Q 4&' &0>2.*(' /,' (!&6' &41'
>-..<&' .2*' <*.(/.2*1' /,' -2!;;*3' 2/'&.'
2!3'A*11!4>'A!.2'2*(' !4'.2*' .*67;*' /,' .2*'
256<(&*&4' 7/;;/' A&3' D!;;*1' <5' &(!3'
,.*(' .2*',&;;' /,' (/5'.2*'32&1*' /,' -2!;;*3'
1*6&41*1' .2*' *07!&.!/4' /,' 2!3' 1*&.2' A!.2'
2*(' <;//1' &41' 32*' A&3' 3&-(!,!-*1' /4' 2!3'
,04*(&;'75(*
/6*(!06' '4&6*'>!=*4'<5'.2*' /6&43'
./' .2*' 37&-*' /(!>!4&;;5'&;/4>' .2*' -!.5"A&;;'
A!.2!4'&41'A!.2/0.' A2!-2' A&3' ;*,.'=&-&4.'
&41'(*-D/4*1'2/;5' 2!3'37&-*' A&3'6&(D*1'
/,;'<5'3./4*3'&41'!4'(*37*-.'./' .2*' &037!-*3'
,/(6*1' .2*';!6!.' <*.A**4'-!.5'&41'-/04.(5'
W ' !=5' !' CC' &41' !-*(/' 5 ' >
5 ' !!' $$' *1' ' &5/(g
2*' /;1' /6*(!06'(*6&!4*1'04-2&4>*1'
04.!;' .2*' .!6*' /,' 0;;&" &,.*(' 2!6' !.' A&3"
&>&!4'*0.*41*1'<5' &*3&(' 0>03.03' ;&01!03'
*(/' *37&3!&2' &41' !.03' &1(!&4' &41'
7(/<&<;5' &;3/' (&K&4' &41' 0(*;!&4' 7!'
*0.*43!/4' /,' .2*' /6*(!06' A&3' /4;5' &1F
6!33!<;*' /4' .2*' >(/041' /,' &4' *0.*43!/4'
/,' .2*' ;*>&;' </041&(!*3' /,' .2*' 67!(*'
f &-!.03' " " '0!!'@ g
16/4&' 2*' &.!4' >/11*33' /,' ,(0!.'
.(**3'A2/'!4' /6*' 2&1'&',;&6*4'/,'2*(' /A4'
#, " ' !D*' *(.06403' A2/' A&3'
(*>&(1*1'&3'2*(' 203<&41'32*' A&3'7&(.!-0F
;&(;5'2/4/0(*1'!4'.2*'-/04.(5' !.'(*7(*F
3*4.3'2*(' &3' &',&!(' 1&63*;' A!.2' ,(0!.3'!4'
2*(' </3/6' &41' .2*' 7(04!4>"D4!,*' !4' 2*(
2&41
/67*!03' (/>03' ' -/4.*67/(&(5'/,'
!=5' &0.2/(' /,' .2*' ,!(3.' /6&4' >*4*(&;'
2!3./(5' *' A&3' /,' &0;!32' /(!>!4" 2!3'
>(&41,&.2*(' (*-*!=*1'.2*' /6&4'-!.!Q*432!7"
,(/6' /67*!03'!4'.2*' *(./(!&4' &('&41'2!3"
,&.2*(' 3*(=*1' 041*(' &*3&('&41'1!3-2&(>*1'
&.' .2*' 3&6*' .!6*' .2*' /,;' -*3'/,'&' 3*-(*.&(5'
&4' &6<&33&1/(' &41' &' D**7*(' /,' .2*' 3*&;3'
!3' *0.*43!=*' A/(D'!4'CC'</D3'A&3'1(&A4'
,(/6' (**D'3/0(-*3'&41' A&3' *4.!.;*1' '
' ,(' <*-&03*' .2*' 2!3./(5' /,'
.2*'=&(!/03'7*/7;*3'A&3'>(/07*1'(/041'.2*a

&-*1/4!&4' *67!(*' ,/041*1' <5' 2!;!7" !.' <*>&4' A!;<' !403'&41'(*&-2*1'1/A4'./'2!3'/A4' .!6**' !.2' .2*' 2!3./(!-&;' 4&((&.!=*' .2*(*' A*(*' !4.*(A/=*4' !4.*(*3.!4>' 1*3-(!7F .!/43' (*;&.!4>' ./' >*/>(&725' *.24/>(&725' &41' 4&.0(&;' 3-!*4-*' " &41' !41**1' 2*' !3' 3&!1' ./' 2&=*' &;3/'-/67/3*1'Q//;/>!-&;' &41'</.&4!" /&;' A/(D3' ,' .2*' 2!3./(!*3' A*'4/A'7/33*33' /4;5' ;!3.3' /,' .2*' -/4.*4.3' /,' .2*' 3*=*(&;' <//D3'8-&;;*1'.2*' /1' &41' .2*' *7!./6*' /,' 03.!4' # '3) A

/67/4!03' 8$9' ; ' , " '

" " " ' !*' /,' V4?4!&' # 1" '

1/4(!32*1' &B0.' TN'4-' *' A&3' .2*',!(3.' ./' (&!3*' .2*' 2!.2*(./' !67(/=!3*1' 7/70;&(' 7;&53'-&;;*1' " '# './'&'37*-!*3'/,'&(.' <5' .2*' !4.(/10-.!/4'/,' A(!..*4' -/67/3!.!/4' !4' .2*' 6*.(!-&;',/(63'&41'.*-24!-&;'(0;*3'/,' .2*' (**D3' *'!3'7&(.!-0;&(;5'7(&!3*1',/(' (!-24*33'/,',&4-5';!=*;!4*33' !4' .2*' 03*' /,' (03.!-' &41',&(-!-&;';&4>0&>*' f *;;*!03' &.' !!' T' ?'' &-(/<!..3' " '=!' T' C'' *4*-&' $ " '=!!' $R' T9' </0.' UN' .!.;*3'/,'7;&53'<5'2!6'&(*' 6*4.!/4*1'&'7(/F 10-.!=*4*33'*07;&!4*1'<5'.2*'36&;'-/67&33' /,'.2*' " '&3'<*!4>'&,.*("7!*-*3' /6*' .!.;*3'7/!4.' ./' .(&=*3.! 3' /,' 65.2/;/>!-&;' 30<K*-.3' 30-2' &3' .2*' ' 1 ' " " '" &41' .2*' @ ' ' (' ' 8/,' -2!;;*39

8@9' + ' , " ' ' ' 2*'

(8 9' ; ' , " ' " ' 2*'

6/3.!67/(.&4.'.(&>*1!&4'/,'.2*'.!6*'/,'.2*' 67!(*'7(/<&<;5'.2*';&3.'A2/'A(/.*'/,'(' .2*'3.&>*' *' ;!=*1'041*(' !< (0' &41' A&3' &'7&(.!3&4'/,' K&403'&,.*(A2/3*',&;;' 8R$' 9' 2*'2&1'./'30<6!.'./'<*'D*7.'!4' -03./15'<5'2!3'<(/.2*(',/(' 3!O'5*&(3'04.!; ' B;;>.;;&' >&=*' 2!7!' 2!3',(**1/6' 4'CC'2*' A&3'-/430;" !4'VN'2*',/0>2.'A!.2'30--*33' &>&!43..2*' 2&..!'&41'(*-*!=*1'.(!0672&;' '2/4/!!(3',./6' ;&01!03' !3'7/*.!-&;'7(/F 10-.!/43'&(*' 2!>2;5'37/D*4'/,'<5' &-!.03' W ' O!!' @R9' &41' S0!4.!;!&4'fO' $ '' TR9' *' 7/33*33'/4;5'=*(5'3-&4.5'(*6&!43'/,' <!3'.(&>*1!*3

8C9' , " ' ' ' 4&.!=*' /,' !4>*4.*(&' !4' 7&!4' *' -/67/3*1' & 1*3-(!7.!/4' /,' .2*' A/(;1' !4' .2(**' </D3' 8La-' (1 (' .2*' *&(;!*3.' A/(D' /,' .2!3' D!41' A2!-2' A*' 7/33*33' &41' .2*' /4;5' 7*-!&;' A/(D' /4' .2*' 30<K*-.' A2!-2' /6&4' ;!.*(&.0(*' 2&3' ./' 32/A' --/(1!4>' ./' & 4/.!-*' !4' .2*' </!D' f!!!' CT9' !.' A&3' A(!..*4' *!.2*(' !4' CN' ' A2*4' &;,>,!;& .(!0672*1' /=*(' .2*' (!./43'/(' !4' CC'A2*4' ;&01!03' 1!1' .2*' 3&6**' 2*' &0.2/(3' !4,/(6&.!/4

1/*3' 4/.' (*3.' 07/4' 7*(3/4&;' !437*-.!/4' <0.' !.' !3' 1(&A4',(76' >//1' .2/0>2' 6/3.;5' &4.!:0&.*1' (**D' 3/0(-*3' (!.!4>' !4' &' <(!*;' &41' -/4-!3*' 3.5;**' 2*' 1*3-(!<*3'!4'.2*' ,/(6'/,'&'-/&3.!4>" 5&>**'A!.2' /(.2' ,(!-&' ,/('!.3'3.&(.!4>"7/!4.'.2*'=&(!/03'-/04.(!*3'/,' .2*' .2*4'D4/A4'A/(;1'!4'>*/>(&72!-&;'/(1*(' 04.!;' 2*' -/6*3' <&-D' <5' A&5' /,' *3.*(4' ,(!-&'./' .2*' 7/!4.',(/6' A2!-2' 2*' 3*.'/0.' !3';&4>0&>*'<*&(3'.2*'(2*./(!-&;'-2&(&-.*(' /,'2!3'.!6*

8V9' - L' , " ' 1!3.!4>0!32*1' K0(!3.'/,'.2*',!(3.'2&;,'/,'.2*' @41'-*4.0(5' ' *' -/67/3*1'&6/4>'/.2*('A/(D3'& 2!3./(5'/,';&A'&41'K0(!37(01*4-*1/A4'./' .2*' .!6*' /,' &1(!&4'A2!-2'!3',(*:0*4.;5' :0/.*1'!4'.2*' !>*3.

8?9' , " ' (: ' /6&4'>(&6F 6&(!&4'A2/';!=*1'!4'.2*',!(3.'2&;,'/,'.2*' @41'-*4.0(5' '&41'-/67/3*1'&-/6 6*4F .&(5'/4' /(&-*'&',(&>6*4.&(5'&<(!1>6*4.' /,'A2!-2'!3'3.!;;'7(*3*(=*1 /4.;,*0' 6*6<*(' /,' .2*' 2!>2*3.' 7(!*3.;5'-/;;*>*'!4' /6*'./'A2!-2'<*;/4>*1' .2*' 307*(!4.*41*4-*' /=*(' &;;' 3&-(*1' /<3*(F =&4-*3'A2*.2*(' 7*(,/(6*1'<5'.2*' .&.*'/(' <5' 7(!=&.*' 7*(3/43' 2*' 6*&4!4>'/,' .2*' 4&6*'!3'04-*(.&!4" .2*'!4.*(7(*.&.!/4'A2!-2' ,/;;/A3'6/3.'/<=!/03;5',(/!4'.2*',/(6'/,'.2*' A1(1'.2&.'/,'H'<(!1>*"<0!;1*(!'(*,*((*1'!4' 7&(.!-0;&(' ./' .2*' 3&-(*1'<(!1>*' /4' 7!;*3' # " ' '/=*(' .2*' !<*(' !3' 7*4' ./' 6&45' /<K*-.!/43'B D*' ,/041&.!/4'/,' .2*' -/;;*>*'!3'&3-(!<*1'./' 06&" &.',!(3.!.'7(/F <&<;5'-/43!3.*1'/,'3!O'7&.(!-!&4' 6*6<*(3' A!.2'.2*'&11!.!/4'/,'.2*'D!4>'A2/3*7;&-*' &,.*(' .2*'&</;!.!/4'/,' .2*' /4&(-25' A&3' .(&43,*((*1'./'(' " -' -'82!>2" 7/4.!,,9" ,(/6'RNN' '!.'A&3'-/67/3*1'/,' 4!4*' 6*6<*(3'8C'7&.(!-!&4'&41'V'7;*<*!&49' K!(/6'.2*'.!6*'/,' 0;;&'/,',!,.**4'8U'7&.(!-!&4' &41'R'7;*<*!&49" 3*3&(' &11*1'&4/.2*(' 6*6F <*('&41'.2*'*67*(/(3'&;3/'(&!3*1'.2*'406<*(' &.'.2*!(' 7;*&30(*' 2*' /,,!-*' &3' ,/(' ;!,*' &3' A&3'&;3/'.2&.'/,'.2*' 7(*3!1*4.' 2!;*' !4'.2*'.!6*'/,'.2*' /4&(-25'.2*'7/4.!,,3' A*(*'7(/<&<;5'4&6*1'<5'.2*' D!4>'041*(' .2*' *70<;!-'.2*'-/;;*>*',/(' &' ;/4>'.!6*' ,!;;*1'07'!.3'/A4'406<*(3'<5'-/"/7.&.!/4' &41'&;3/'&77/!4.*1'.2*' 2!>2"7/4.!,,' ,(/6' &6/4>'!.3'6*6<*(3' (/6'3/6*A2*(*'&</0.' @VN' '.2*'*;*-.!/4'/,'.2*';&..*(.//D'7;&-*' !4'.2*' '/,'.2*'.(!<*3'041*(.2*'7(*F 3!1*4-5'/,'&'7/4.!,,'&41',(/6'$N' '.2*'

(/,*33/(' *..;*32!7'&(>0*3'!4' 077/(./,'!.' !4' 2!3' ; (' " ' 9 : '7'@U' ,' .2*' .&;!&4' !6 6!>(&.!/4'-&6*'/=*(;&41'.2*'/,,!-*'/,'<(!1>*" <0!;1*(' A/0;1'<*' /,' >(*&.'!6 7/(.&4-*' .' !3' &77&(*4.;5'-/44*-.*1'A!.2'(!=*("A/(32!7

;01' .2*'307*(!4.*41*4-*'*=*(' 6&45'.(&43&-F .!/43'/,'7(!(&.*',;!,*'3/',&('&3'-*(*6/4!&;':0*3F .!/43'A*(*'-/44*-.*1'A!.2'.2*6'30-2'&3'.2*' -/4-;03!/4'/,' 6&((!&>*3'&1/7.!/4'<5'6*&43' /,'&((>&.!/4'&41'<0(!&,' =*4'07/4'.2*' -!=!;';&A'.2*5'2&1'/(!>!4&;;5'>(*&.'!4,;0*4-*' !4&360-2'&3'.2*5'&;/4*' *(*'!4'.(&1!.!/4&;' 7/33*33!/4' /,' .2*' 3/;*64';*>&;' "" ' D4/A4'&3'.2*' 1 ' - " ' A2!-2' A/(*' 4*-*33&(5',/(' *=*(5';*>&;' .(&43&-.!/4'!4F -;01!4>'.2*'3*..;*6*4.'/,';*>&;'<03!4*33'&41' .2*',/(63',/(';<(!4>!4>';&A30!.3'2*5'*=*4' >&=*';*>&;'/7!4!/43'A2!-2'/<.&!4*1'(*-/>F 4!.!/4'!4'.2*'-/0(.3'&3'-03./6&(5';&A'<5' .2*'3!1*'/,'.2*'A(!..*4';&A'&41'>(*A'!4./' &'3*-/41'&0.2/(!.&.!=*'3/0(-*'/,' /6&4';&A' 4.!;'.2*'*3.&<;!326*4.'/,'.2*'7(&*./(B!7' 8??'4 H'&'6*6<*(' /,'.2*'-/;;*>*'A&3' &77/!4.*1'*=*(5'5*&('./'!67&(.'!4,/(6&.!/4' ./'7(!=&.*'7*(3/43'-/4-*(4!4>'.2*';*>&;' ,/(63'-/44*-.*1'A!.2'.2*',/(60;&.!4>'/,' 7;&!4.3'&41'/.2*(';*>&;'<03!4*33'2*'1L Y " 'A*(*'6&1*'70<;!-',/(' .2*',!(3.' .!6*'<5'.2*'&</=*"6*4.!/4*1' ;&=!03'&.' .2*'3&6*'.!6*'&3'.2*'-&;*41&(' 8! ,**

/4.!03' '37*-!&;'4&6*'/,'.2*'3*&">/1' (;&0-03'&

/4.03' 2*'3*&'3/4'/,' &*&'&41'<5'2*(' &>&!4'',&.2*('/,' *(*03'2&06&3' 2/(-B3' */'&41' 0(,'<;&

17!46' /6&4'-//D"32/73' & 'A

/7;,,J!B&' 2*',*3.!=&;'/,'.2*',;!>2.'/,' .2*'7*/7;*' & '" '

/(,; 43' &, ' ' &.!4 7/*.'A2/'-/67/3*1'&</0.'R N' '&'3*(!*3' /,'32/(.'7/*63'!4'7(&!3*/,' /43.&4.!4*'-/4F 3.(0-.*1'!4'&'2!>2;5'&(.!,!-!&;'6&44*(' f ;;' .2*';!4*3'!4'&-2'7/*6'-/4.&!4'*0&-.;5'.2*' 3&6*'406<*(',/,';*..*(3g' 5'.2!3'-/67/3!F .!/4'2*'/<.&!4*1'2!3'(*-&;;',/(6'<&4!326*4.' &41'A/4'.2*',&=/0(',/,'.2*'*67*(/(' 2*' //66*21&./(5';*..*(/,' /43.&4.!4*'&3'A*;;' &3'.2*'.2&4D3',/,'.2*'7/*.'2&=*'-/6*'1/A4' ./'03'A!.2'.2*'7/*6

/(72K,(!/4' 8$9' 4*'/,'.2*' !&4.3'& ' @

8@9' ' &) '.$

/!725(5'8 (**D', ('8 (**D' 3-2/;&(' &41' 72!;/3/72*(" !4' .2*' ;&..*(' -&7&-!.5'&'=/.&(5'/,' */7;&./4!36' *' A&3'</6'@ ' '&.' &.&43*&'!4' 5(!&'&41' (*-*!=*'1'2!3' *10-&.!/4'&.' 5(*'&41'&,.*(F A&(13'3.01!*1'>(&66&('(2*./(!-'&41'72!;/F 3/725'&.' .2*43'A!.2' /4>!403'A2/'!43.*&1' /,'2!3' 5(!&4'4&6*' '8H'D!4>'d9'>&=*' 2!6'.2*' (**D'4&6*', ('8d-;&1'!4' (/5&;'70(7:*'I9% 2*',&6*'/,'.2*' */7;&./4!3.' ;/.!403'1(*A'2!6'!4'@?'./' /6*'A2*(*

&,.*('3/6*'!4!.!&;' 77/3!.!/4'2*',/('3!O'5*&(3' *4.203!&3.!-&;;5'1*=/.*1'2!63*;'./'.2*'3.015' /,' .2*' */7;&./4!-'72!;/3/725' *!4>'&.F .&-D*1'<5'&'1&4>*(/03'6*;&4-2/;5' .2*' (*30;'/,'/=*(A/(D'2*'A*4.'/4'.2*'&1=!-*' /,' ;/.!403'./' !-!;5'A2*4-*'&,.*(',!=*'5*&(3' 2*'(*.0(4*1'./' /6*'3.(*4>.2*4*1'!4'61' &41'</15' *(*'04.!;'2!3'1*&.2'8?NC9'2*' .&0>2.'72!;/3/725'!4'.2*'37!(!.'/,' ;/.!403' *37*-!&;;5'<5'<(!4>!4>'.2*'.*&-2!4>'/,'2!3' <;&3.*(' A!.2!4'.2*'(*&-2'/,'>*4*(&;'D4/A F ;*1>*'<5'2!3'-;*&('&41'&..(&-.!=*'07/3!.!/4' !3'6/3.'!67/(.&4.'3-2/;&('A&3';&6<;;-203' '6&4'/,'=&(!*1'-0;.0(*' /(725(5'&3'7&(F .!-0;&(;5'7(/;!,!-'&3'&4'&0.2/('!4'.2*'1/6&!4' /,'72!;/3/725'>(&66&(' (2*./(!-'&(!.2F 6*.!-'>*/6*.!5'&41'603!-'' 2/A*=*(' 6/3.' /,'2!3'A/(D3'!4-;01!4>'.2*'6/3.'!67/(.&45' &(*';/3.'&6/4>'.2*'6'&'.(*&.!3*'&>&!43.'.2*' 2(!3.!&43'!4'6.**4'</D3'A2!-2'&3'70<F ;!-;5'<0(4*1'041*(' 2*?1?3!03' '8C V9' *'2&=*'./';&6*4.'.2*';33'/,'2!3'2!3./(5' /,' (**D'72!;/3/725'<*,/(*' ;&./'!4',/0(' </D3'/,'A2!-2'A*'4/A'7/33*33'/4;5'.2*' 8-*(.&!4;5'04-(!.!-&;g' ' ' ,: ' &41'.2&.'4/.'-/67;*.*' *3!1*3'.2!3'.2*(*' &(*'7(*3*(=*1'&' ; ' ' ' , " '' &$ R " ' (: ' ' ' , " '!4'.2*' ,/(6'/,'&72/(!363''&'A/(D'/4'&<3.&!4!4>' ,(/6'&4!6&;',/1'&5' " " '!4',/0(' </D3',(/6'.2*' 5.2&>/(*&4'7/!4./,'=!*A' =&;4&2;*',/('!.3',0;4*33'/,'!4,/6!&.!4'/4' 72!;/3/725'&41'/4'.2*'(*;!>!-63',/(63'/,' (!.0&;'&41'-43./63',/'=&(!/03'7B7;*3''&4' '" "' ('$ 1 ' ' ' &41'&-/66*4.&(5'/4'.2*'3&6*'!4'.2*',/(6' /,':0*3.!/43'&41'&43A*(3''&-/67*41063' /,'2!3'/A4'7(&-.!-&;'72!;/3/725'!4'.2*',/(6' /,'&' ; ' '&'A!1/A!.2/0.' 6/7*(.5'&41'A!.2'3*=*4'-2!;1(*4'A2/6' ,;/.!403'6&((!*1'!4'2!3'/;1'&>*'/4'&--/04.' /,'2*('*4.203!&36',/('72!;/3/725" ("'' 1!3-033!/43'/4'&'406<*(/,' /6*(!-':0*3.!/43'&4'&;*>/(!-&;'!4.*(7(*F .&.!/4'/,'.2*' /6*(!-'3./(5'/,'.2*'>(/../,' .2*' 56723'!4'.2*' 1533*5'&41'&$ R " :' "' ' ' , : /((;6&' ' & * & '' /(.!!-43' 2*' /6&4'4&6*',/('&'-/;/4F 4&1*' & '$ /(.;&41' & ' '@ & '&.'*41 /(./(;06' 2*'-03./6';*=!*1'<5'.2* /6&43'07/4'!67/(.3'&41'*07/(.3'!.'A&3' !4.(/10-*1'&3'*&(;5'&3'.2*'.!6*/,'.2*'D!4>3' &41'A&3'>*4*(&;;*'&3*1'./' " '& ' 4'?N' /'!.'A&3'&</;!32*1',/(' .&;5'<0.' A&3'(*"!4.(/10-*1'<5' &*3&(',/(',/(*!>4' >//13'&41'&,.*(.2&.'.!6*'&;A&53'-/4.!40*1' ./'*0!3.' (**'&41'&;;!*1'-!.!*3'A*(*'!4

&(;!(' .!6*3 '&;;/A*1' ./';*=5' .2*' -03./ 63',/(' .2*!(' /A4' .*((!./(5 '<0.' ,(/6 '.2*3*' /6&43' A*(*' ./' <*' *0*67.' 41*(' .2*' *67*(/(3' -03./63' A*(*' ;*=!*1'4/.'/4;5'&.' .2*' ,(/4.!*(' /,' .2*' 67!(*' <0.'&;3/' &.' .2*' ,(/4.!*(3' /,' .2*' 3*=*(&;' 7(/=!4-*3' /(' /,' -/6<!4&.!/43' /,' 7(/=!4-*3' 04!.*1' !4' /4*' *0-!3*"1!3.(!-.' *3!1*3' .2!3' .2*' 7*(-*4.&>*' ;*=!*1' /4' .2*' 70(-2&3!4>' 7(!-*' /,' &(.!-;*3' A&3' 1!,,*(*4.' !4' 1!,,*(*4.' 1!3.(!-.3' 2*' *07/(.' /,' 6&45' &(.!-;*3' A&3' ,/(<!11*4' *37*-!&;;5' /,' -/(4' /!;' A!4*' 3&;.' !(/4' &41' >/;1

/(.0403' 2*' /6&4'>/1' /,' 2&(</0(3' !D*' &403' .2*' >/1' /,' -/6!4>'!4'&41'>/!4>' /0.' 2*' A&3' (*7(*3*4.*1' A!.2' &' D*5' &41' A&3' 7*(2&73' /4;5' &' 7*(3/4!,!-&.!/4' /,' /4*' &..(!F <0.*' /,' &403' *' 2&1' &' 37*-!&;' "' !4' /6*' &, " ' &41' &.' .2*' 2&(</0(' /4' .2*' !<*(' 2*' 2&1' &' .*67;*' A2*(*' &',*3.!=&;' .2*' , " ' A&3' 2*;1' !4' 2!3' 2/4/0(' *=*(5'5*&(' /4' 0>03.' $U.2' 4';&.*(.!6*3' 2*' A&3' !1*4.!,!*1' A!.2' .2*' (**D' &;&*6/4 13*!1!7703' 4*' /,' .2*' 6/3.' *6!4*4.' 7/*.3' /,' .2*' *A' /6*15' &'4&.!=*' /,' &3" 3&41(*&' !4' &-*1/4!&' *' <*>&4' ./' *02!<!.' ,/(' .2*' ,!(3.' .!6*' !4' .2*' .2!(1'5*&(' &,.*(' .2*' 1*&.2' /,' >4&41*(' /(' !4' ' @RT' ' 2!3'7!*-*3' &3' 6&45' &3',/(.5'&(*' 6*4.!/4*1' <5'4&6*' <0.' /4;5',(&>6*4.3' /,' .2*6' &(*' 7(*3*(=*1' .' A&3' 7(/<&<;5'!4'!6!.&.!/4' /,' /4*' /,' .2*3*' .2&.' .2*' " (' /,' ;&0.03' A&3' A(!..*4

13*!1/4' 2*' (**D' >/1' /,' .2*' 3*&' &41' /,' *=*(5.2!4>' ;!:0!1' 3/4' /,' (/403' &41' 2*&" &' 5/04>*(' <(/.2*(' /,' *03' &--/(1F !4>' ./' /6*(" &4' *;1*(' <(/.2*(' &--/(1!4>' ./' *3!/1' .' .2*' 1!3.(!<0.!/4' /,' .2*' A/(;1' .2*' (0;*' /=*(' .2*' 3*&' &41' &;' !.3' >/13' &41' -(*&.0(*3' ,*;;' ./' 2!6' &3' .2*' (0;*' /=*(' .2*' 3D5' ,*;;' ./' L*03' &41' .2&.' /=*(' .2*' 041*(F A/(;1' ./' ;0./' !3' A!,*' !3' 6 72!.(!.*' 2!3' 3/4' (!./4' 2!3' 1&0>2.*(' *4.2*3!D5 6*' 3' 1*3-(!<*1'<5' /6*(' 0!!!' @$g' 2*' 2&3' 2!3' 1A*;;!4>' !4'.2*' 1*7.2' /,' .2*' *&' !4' &' >/;1*4' 7&;&-*' 4*&(' ! >3*' &--/(1!4>' ./' .2*' 030&;' &--*7.&.!/4' /4' .2*' 4/(.2'-/&3./,' .2*' *;/F 7/44*303' A2*(*';&5'&;3/' 2!3' /.2*(' 7;&-*' /,' A/(32!7' 6*4.!/4*1' <5' /6*(' ,!;;-*' =!!!' @N g' &,.*(A&(13' /=*(.2(/A4' <5' &4' *&(.2:0&D*' 4';*&=!4>' 2!3' 7&;&-*' 2*' !3' -;&1' !4' &' >/;1*4' (/<*' &41' A!*;13'!4' 2!3' 2&41' &' >/;1*4' A2!7' A2!;*' 2*' 3.&413' !4' &' -2&(!./1(&A4' <5' 3A!,.",//.*1' 3.**13' A!.2' 2//,3' /,' '<(/4Q*' &41' 6&4*3' /,' '>/;1' A!.2' .2*' 6/43.*(3' /,' .2*' 1**7' </041!4>' &41' ,(!3D!4>' &(/041' 2!6' &3' 2*' 1(!=*3' /=*(' .2*' 3*&' A2!-2' K/5"

% *(2&73' /(!>!4&;;5' .2*' >/1' /,' 2/03*' &41' 2/6*' '!4'!.3' /;1' 3*43*' /,' .2*' *4.(&4-*' ./' &' 2/03*' & ' (/,' *..;*32!73'9 : '7'@?9

,0;;5' /7*43' <*,/(*' 2!3' &1=&4-*' 3' L*03' <*&(3' .2*' ;!>2.4!4>' 3/' /3*!1/4' <*&(3' .2*' 6!>2.5' .(!1*4.' A!.2' A2!-2' 2*' 3.!(3'07' .2*' 3*&' -;*&=*3' (/-D3' &41' 6&D*3',/04.&!43' &41' 2/(3*3' 37(!4>',/(.2',(/6' .2*6' 4/.2*(' 356</;' /,' .2*' 3./(65',;//1' !3' .2*' <0;;' ,/(' A2!-2' (*&3/4' 6*4' /,,*(*1'3&-(!,!-*' ./' /3*!F 1/4' A!.2' 1&(D"-/;/0(*1' <0;;3' A2!;*' /4' .2*' /.2*(' 2&41' .2*' 1/;72!4' !3' &' 356</;' /,' .2*' 7*&-*,0;' &41' -&;6'3*&' /(' A2!;*' 2*' 3*413' 3./(6'&41' 32!7A(*-D' 2*' !3' &;3/' &' <*4*,!-*4.' >/1' A2/' 3*413' ,&=!0(&<;*' A!413' =*(5' /--07&.!/4' /4' /(' <5' .2*' *&' 4&=!>&.!/4' .(&1*' ,!32!4>' !3' 30<K*-.' ./' 2!3' 7/A*(M 2*' &;3/' !.' !3' A2/'>(&4.3' =!-./(5'<5'3*&' *&,&(F !4>' 7*/7;*3'.(&-*1'.2*!(/(!>!4'./' 2!6' 0.' &3' .2*' 3*&' A&3' .2/0>2.'/,' &3' 3077/(.!4>' .2*' *&(.2' &41' &3' 7(*33!4>' !4./' !.3' 2!11*4' -;*,.3' &41' 2/;;/A3' 3/' /3*!1/4' A&3' A/(32!77*1' ,(/6' /4*' 7/!4.' /,' =!*A' &3H .2*' 3077/(.*(' /,' .2*' *&(.2' I' &1 . ',(/6' .2*' /.2*(' &3H .2*' 32&D*(' /,' .2*' *&(.2' I' & " " 1! ' " 2(" ' A2/' 6&D*3' .2*' *&(.2' :0&D*' <*4*&.2' .2*' <;/A3' /,' 2!3' .(!1*4.' 3'30-2' 2*' A&3' A/(F 32!77*1' !4' 1!3.(!-.3' A2!-2' A*(*' &' 7(*5' ./' *&(.2:0&D*3' &3' !4' 7&(.&'/(' !4' .2/3*' A2!-2' -/0;1' 32/A' .(&-*3' /,' >(*&.'-/4=0;3!/43' &3" !4' 2*33&;5' A2*(*' 2*' A&3' &!1' ./' 2&=*' /7*4*1'07' .2*' &;*' /,' *67Z' &41',/(6*1' .2*' /0.;*.' /,' .2*' *4*,.3' !4./' .2*' 3*&' <5' 32&..*(!4>' .2*' A&;' /,' (/-D' A2!-2' !4-;/3*1' .2*' =&;;*5' 4' .2*' !4.*(!/(' /3*!1/4' A&3' /,.*4' A/(32!77*1' &3' .2*' -(*&./(' /,' A&.*(3' *37*-!&;;5',' 37(!4>3' &41' .2*' <;*33!4>' <(/0>2." <5' .2*6" 3/' 7&(.!-0;&(;5' !4' (> ;!3' &41' (-&1!&' A2*(*' &3' <*!4>' .2*' ,*(.!;!Q!4>' >/1' 2*' A&3' *=*4' (*>&(1*1' &3' .2*' ;/=*(' /,' 6*.*(' &41',&.2*(' /,' *(3 72 4*' 4' .2*' -/0(3*' /,' .!6*' 041*(' .2*' 7(*1/6!4&4-*' /,' .2*' -/4-*7.!/4' /,' /3*!1/4' &3' >/1' /,' .2*' 3*&' 2!3' /(32!7' !4' 30-2' !4;&41' 7;&-*3' ,*;;' !4./" .2*' <&-D>(/041' &41' A&3' 1!37;&-*1' <5' .2&.' /,' /.2*(' 1*!.!*3' *4-*' &(/3*' .2*' ;*>*413' /,' 2!3' -/4.*3.3' A!.2' /.2*(' >/13' ,/(' 7&(.!-0;&(' -/04.(!*3' &3' A!.2' .2*4*' ,/(' .2*43' &41' (-*Q 4' &41' A!.2' *(&',/(' (> ;!3' &41' /,' *0-2&4>*3' &3' .2&.' /,' *;72!' ,/(' .2*' !3;&41' /,' &;&0(!&' A2!-2' <*;/4>*1' ./' 7/;;/' *' A&3' &;3/' (*>&(1*1' &3' .2*' -(*&./(' &41' .&6*(" /,' .2*' 2/(3*" 3/6*.!6*3' 2*' A&3' 3&!1' ./' 2&=*' <(/0>2.' !.' /0.' /,' &' (/-D' <5' &' <;/A' 3/6*F .!6*3' .2*' *&(.2' A&3' 3&!1' ./' 2&=*' <**4' !6F 7(*>4&.*1' <5' 2!6' &41' 3/' >!=*4' !.' <!(.2' &--/(1!4>;5' 2*' A&3',(*:0*4.;5' A/(32!77*1' &3' &4' *:0*3.(!&4'>/1' &(' 203' !4' .2*' ..!-' 1*6*' /,' ;/403' 2*' A&3' A/(32!77*1' ./>*.2*(' A!.2' .2*4*' A2/' A&3' &!1' ./' 2&=*' !4=*4.*1' .2*' <(!1;*' *' A&3' &;3/' 37*-!&;;5' A/(32!77*1' &.' .2*' *:0*3.(!&4'>&6*3' &.' .2*"

3.2 6 03 A!4> ./ .2 >(*&. 1!,,03!/4 /, 2!3 A/(32!7 .2(/0>2 & .2 (**D (&-*3 /, .2 6 /.2*("-/04.(5 &3 A*;;&3 /, .2 -/;/F 4!*3 2 7;&53 &-2!*, 7&(.!4" (**D;*>*41 &77*&(!4> &3 *&(;5 &3 .2 (/K&4 3./(5 !4 A2!-2 2 3.&413 /4 .2 3!1 /, .2 (**D3 !4 !((*-/4-!;&<;* A(&.2 &>&!43. (/5 /4 &--/04. /, .2 1*-*7.!/4 7(&-.!3*1 /4 2!6 <5 &<6>1/4 !6!;&(;5 1533*03 -&44/. <*7(/.*-.*1,(/6 2!3 (&>* /4 &--/04. /, .2 <;!41!4> , 2!3 3/4 <;B72*6 03 *0-*7. <5 .2 04&4!6/03 A!;; /, .2 /.2*(>/13 2 04(0;5 A!;14*33 /,.2*3*& A2!-2 !3(*,;*-.*1 !4 2!3 -2&(&-.*(&77*&(3 &;3/ ,(*:0*4.;5 !4 2!3 3/43 30-2 &3 (!/4 <;572*643 5-403 4.&*03 03!(!3 65/03 *(*5/4 &41 /.2*(3 0. 2 A&3 &;3/ 1**6*1 ./ <* .2*

8 /63 &.*(&4 03*06 9

&4-*3./(/,40 6*(/03 4/<;* ,&6!;!*3 *37*-!F &;;5 /, .2 /4!&4(&-* A2!-2 ,(/6 ;1 .!6*3 A/(32!77*1 2!6 &3 &4&.!/4&; >/1 &41 ,(/6 .2*!(2/6 * /4 .2 4/(.2 -/&3. /, .2 *;/F 7/44*303 -&((!*1 2!3 A/(32!7 /=*(A!.2 .2*6 ./ 3!& * (* !4 2!3 -2!*, 3&4-.0&(5 /4 .2 7(/6/4./(5/, 5-2;* .2 ;/4!&43 -*;*F <(&.*1 .2*!(4&.!/4&; ,*3.!=&; .2 &4!/4!& (/6 .2 /4!&4(&-* &41 !.3 (*7(*3*4.&.!=* 2*3*03 &(/3 &;3/ .2 4&.!/4&; ,*3.!=&; /, /3*!1/4 /<3*(=*1 <5 &; (**- &. .2 /(!4.2!&4 3.2603 A2*(* .2 3.2 6!&4 >&6*3 A*(* -*;*<(&.*1 !4 &;.*(4&.* 5*&(3 2 (**D3 &,.*(.2*!(=!-./(5 /=*(.2 *(3!&43 3*.07 &<(/4Q* -/;/3303 6/(* .2&4 ; K ,**. 2!>2 !4 2/4/0(/, .2 3.2 6!&4 >/1 f *(/1 !O R$g

2 2/(3* .2 1/;72!4 &41 .2 7!4 .(** A*(* 1**6*1 3&-(*1 ./ /3*!1/4" !. A&3 A!.2 A(*&.23 /,7!4 .2&. .2 =!-./(3 !4 .2 3.2 6!&4 >&6*3 A*(* -(/A4*1 * A&3 A/(32!77*1 A!.2 206&4 3&-(!,!-*3 <0. 6/(* >*4*(&;;K, A!.2 3&-(!,!-*3 /, 2/(3*3 &41 <0;;3 *37*-!&;;5 <;&-D /4*3 .2*3 A*(* 4/. 04,(*:0*4.;5 20(;*1 &;!=* !4./ (!=*(3 *3!1*3 2/(3*"(&-*3 <0;;",!>2.3 A*(* 2*;1 !4 2!3 2/4/0(!3 .*67;*3 A*(* 030&;;5 ./ <* ,/041 /4 7(/6/4./(!*3 !3.2603*3 &41 ./4>0*3 /, ;&41 !3 030&; A*(* .2 .(!1*4. &41 .2 1/;72!4 &41 &;3/ .2 .0445",!32 * A&3 (A(*3*4.*1 &3 &7/A*(3 ,0; D!4>;5 6&4 ;!D A03 <0. !.2/0.2!3 *O&;.*1 -&;6 6/(* -/67&-.!4 ,!>0(* &41 A!.2 .2!-D*(&41 -7(;!*(2&!(42!3 2*&1 * !3 1(&7*1 3/6*.!6*3 !4 &;/4> (/<* 3/6*.!6*3 A!.2 &;!>2. 3-&(, A2!-2 &;;/A3 2!3 7/A*(,0; ,(&6* ./ <* 6/(* ,0;;5 1!3F 7;&5*1 # -0.9 /;/33&; 3.&.0*3 /, 2!6 /,.*43./1<5 2&(</0(3 &41 /4 7(/6/4./(!*3 !.2 /3*!1/4 .2* /6&43 !1*4.!,!*1 .2*!(*&">/1 > " # = I

13*!1/4!43 (**D 72!;/3/72*(" & 4&.!=* /, 7&6*& !4 5(!& </(4 &</0.$ V , (/6 2!3 ;&.*(7;&-* /, (*3!1*4-* >*4*F (&;;5-&;;*1 .2 2/1!&4 * A&3 .2* 6/3. 1!3.!4>0!32*1 707!; /, .2 ./!- 4&3.!03 A2/3* !43.(0-.!/4 2* *4K/5*1 &. .2*43 &41 .2 6/3. 3-!*4.!,!- &41 6/3. ;*&(4*1 &6/4> .2* ;&.*(./!-3 ,.*(&4 *0.*41*1 3-!*4.!,!- K/0(4*5 !4 A*3.*(4 0(/7* 2* &--*7.*1 .2* 1!(*-.!/4 /, .2* ./!- 3-2//; &. 2/1*3 A2*(* 2* ./D 7&(. !4 70<;!- &,,&!(3 A!.2 30-2 30--*33 .2&. 2!3" ,*;;/A -!.!Q*43 6&1* 2!6 W A& $ &41 !4 R? 3*4. 2!6 &3 *4=/5 ./ /6* (/6 .2!3 .!6* 2* (*6&!4*1 !4 -/4.!40&; ,(!*41;5 !4.*(-/0(3* A!.2 /6&43 "/, 1!3.!4-.!/4 *37*-!&;;5 !-*(/ &41 /67*!03 f !- !! $ @ + 5 !! ?$g * 1!*1 &. .2* &>* /, RC !3 ;!.*(&(5 ;&</0(3 A*(* =*(5 *0.*43!=** *3!1*3 406*(/03 72!;/3/72!-&; .(*&.!3*3 2* -/67/3*1 6&.2*6&.!-&; &41 &3.(/4/6!-&; A(!.!4>3 &41 & >(*&. 2!3F ./(!-&; &41 >*/&!(&7;=!-&; A/(D !4 ?@ </D3 &3 & -/4.!40&.!/4 / ;5<!03 f * !3 ,(* :0*4.;5 :0/.*1 <5 .(&</ 1 77 $CU $R@ @$?@T UVU g 2* 30<3.&4-* /, .2* + R /, 2!3 707!; 3-;*7 1/.03 3**63 ./ 2&=* <**4 1*(!=*1 ,(/6 2!3 1!3-/0(3* ,! ;** !-*(/ 5 > 5 *1 U 5((7 O=! ,, g

/33*33;/ 2* /6&4 .*(6 ,/(.2* 7/33*33!/4/,&4&(.!-;*A!.2/0.&-.0&;7(/7(!*.&(5 (!>2.& " 2* 4&6*A& >!=*4 !4 7&(.!-0;&(./ .2/3* ;&413 7(/7*(;5<*;/4>!4>./ .2* .&.* A2!-2A*(* .&D*4 !4./ -0;.!=&.!/4 <5 A2&. A& -&;;*1 < /(6/(* J ($ /3.&; *(=!-* 41*(.2* /6&4 6F 7!(*&7/3.&;3*(=!-*7(/7*(A& ,!(3.,/(6*1 !4 .2* .!6*/, 0>03.03 2!3 2/A*=*(A& 4/. !4.*41*1,/(.2* 03*/, .2* 70<;!- <0. 3*(=*1 /4;5,/(.2* -/4=*5&4-*/, 6&>!3.(&.*3&41/,>/=*(46*4.1*37&.-2*3K03.& .2* >(*&.4*.A/(D/, (/&13 A!.2 A2!-2 .2* /6&43 -/=*(*1 .2* A2/;* *6F 7!(* A& ;&!1 1/A4 4/. ,/(.2* 70(7/3*3/, .(&,!!- <0. !4 .2* ,!(3. !43.&4-* ,/(.2* .(&437/(. /, .2* &(6!*3 &41 /, .!(* 6&.*(!&;3/,A&(41*(.2* *70<;!-.2* -/((*37/41*4-*/, /,,!-!&;3 A& -&((!*1 &3 & (0;* <5 37*-!&;6*33*4>*(3 .2* -/4=*5F &4-*/, .2* /,,!-!&;3 .2*63*;=*3 &3 ;&!1 07/4 .2* 7(/=!4-!&;3 A2/ A*(* </041 ./ 7(/=!1* (*;&53 /, 2/(3*3 &41 3077;!*3 0>03.03 !43.!.0.*1 & .&.* 7/3.# =E A!.2 & 6!;!.&(5 /(>&4!Q&.!/4 A2!-2 -/4=*5*1 .2* /,,!-!&;1*37&.-2*3,(/6 3.&.!/4./3.&.!/4<5 6*&43/,-/0(!*(3 /(.2* -/4=*5&4-*/, .2* 6&>!3.(&.*3 3.&F .!/43 A*(* !43.!.0.*1 A!.2 -2&4>*3/, 2/(3*3# " " (!=&.*7*(3/43 A*(*&;;/A*1 ./ 03* .2* .&.* 7/3.3 /4;5 <5 37*-!&;7*(F 6!33!/4 /4 .2* 7&(./, .2* >/=*(4/(3 &,.*(F A&(13 /, .2* *67*(/(&41 07/4 1*,!4!.* /(1*(3 >!=*4 W X ;!45 9 O .2* ;&3. A/;*..*(3g 2* -/3./, .2* 7/3.!4>" 2/03*3 A&3 6&1* &-2&(>* 07/4 .2* 3*=*(&;;/-&;!.!*3 .2/0>2 /--&3!/4&;;5 .2* *67*(/(3 041*(./!D .2* 7(/=!3!/4/,1(&0>2."&4!6&;3 &41 -&((!&>*3 *3!1*3 .2!3 =*33*;3 A*(* 3.&.!/4*1 &. =&(!/03 7/!4.3 /4 .2* (!=*(3 ./ -&((5 ;*..*(3 7&33*4>*(3 &41 >//13 K03.&3 .2*(* A&3 7/3.&;-/6604!-&.!/4 /=*(3*& *37*F -!&;;5,(/6 3.!& .2* 7/(./, /6* /0.F A&(13 ./ .2* !3;&413 &41 -2!*,7/(.3 /, .2* *1!.*((&4*&4 /3.=/(.& " & 1.213 2* (**D7*(3/4!,!-&.!/4/,&6/F (/03 ;/4>!4> &4&..*41&4./, (/3 # /..*(5 2* 3!67;*3. &41 &. .2* 3&6*.!6*/4*/, .2* /;1*3. <(&4-2*3/, .2* 7(!F 6*=&;&(. /, A/(D!4> !4 -;&5 !3 .2* 6&40F ,&-.0(*/, <(!-D3 &41 .!;*3 .2* !4=*4.!/4/, A2!-2 8&. .2*439 A&3 &3-(!<*1 <5 .2* (**D3./.2* 65.2!-&;7*(3/4&>*3 0(5&;03 &41 57*(<;03 f ;!45 > =!! $TCg /,&(&3 <(!-D3 A*(* 03*1 &.&;; .2*!(03* A&3 >*4*(&;;5-/4,!4*1./7(!=&.* <0!;1!4>3 &41 (**D3 &41 /6&43,/(&>*3 *67;/5*1/4;5 04<&D*1/(304"1(!*1<(!-D3 (!-D3 <&D*1 !4.2* D!;4 -&6* !4./ 03* &.& ;&.*(1&.* 2* ,!(3./ *67;/5.2*6*0.*43!=*;5 A*(* .2* /6&43 7(/<&<;5&. .2* 7*(!/1 A2*4 .2* 7/74;&.!/4/,.2* -!.5 (*41*(*1 !.* 4*F -*33&(5./ <0!;1 2/03*3/,3*=*(&;3./(!*3 A2!-2 1*6&41*1& 6/(*3/;!1 6&.*(!&; 4 !67*(!&;.!6*3 30-2<(!-D3 A*(* .2*-/6 6/4 6&.*(!&;,/(7(!=&.* &41 70<;!- <0!;1!4>3 2* A&;;3 A*(* <(0!;/, .2*6 &41 .2*4 /=*(;&!1 A!.2 3.0--/ /(6&(<;* 0!;1!4> A!.2 <&D*1 <(!-D3 *0.*41*1 ,(/6 /6* !4./ (**-* &41 >*4*(&;;5 37*&D!4> A2*(F *=*(.2* /6&43 -&((!*1 .2*!(&(63.2*5 !4.(/10-*1 .2*!(*0-*7!/4&; &7.!.01* ,/(6&D!4> *0-*;;*4. <(!-D3 (!-D3 A2!-2 7(*3*4.*1 ,;&. 30(,&-*3./<* 03*1 ,/(A&;;3 /(7&=*6*4.3 A*(* 6&1* /, .2* 6/3. =&(!/03 1!6*43!/43 <0. A*(* ,/(.2* 6/3. 7&(./.2!44*(.2&4/0(3 *3!1*3 .2*3* .2*(* A*(* &;3/(/041*1<(!-D3,/(<0!;1!4> 1A&(, -/;0643 &41 ,/(.2* -/43.(0-.!/4/, -!(-0F ;&(A&;;3 /((//,* ,&.!;*3 A*(* -2!*,;5 03*1 8 &. 1 A2!-2 A*(* 7(/=!1*1 A!.2 &(&!3*1 (!6 /4 </.2/, .2*!(;/4>*(3!1*3 &41 A*(* 3/ ,/(6*1 .2&. .2* 077*(,!..*1 !4./ .2* ;/A*(/4-&=* .!;*3 &;3/ A*(* 03*1 8 &. -/, /(.2* ,/(6/,/&2&;-5;!41*(A2!-2 -/=*(*1 .2* &1K/!4!4> *1>*3 /, .2* ,.&.!;*3 2*";/A*3. (/A A&3 -/6 6/4;5,!4!32*1/,, A!.2 /(4&6*4.&; 6/0;1!4> (/6 .2* 3&6* 6&.*(!&; &3 <(!-D3 A*(* &;3/ 6&1* 7!7*3,/(-/4=*5!4> A&.*(,/(3*A*(3 &41 ,/(A&(6" &!(" .2* 3*-.!/4!4 .2* ,!(3. A/ -&3*3 A&3 (/041 !4 .2* ;&3. 3:0&(* /..*(5!4!.3 7(/*(3*43* .2* 6&40,&-F .0(*/, 0.*43!;3 !3 =*(5/;1 2* 7/..*(3 A2**; A&3 D4/A4 *=*4 <*,/(* /6*(3 .!6* % O=!!! ?NNg .3 !4=*4.!/4 A&3 =&(!/03;5 &3-(!<*1 ./ .2* /(!4.2!&4 B" 7*(<;03 f ;!45=!! $TRg &41 ./ .2* .2*4!&4 &;03 4*72*A /, 3*1 ;03 /(!4.2 &41 .2*43 A2*(* .2* 4*!>2</0(!4> 7(/6/4F ./(5 /, /;;J3 ,0(4!32*1 &4 !4*02&03.!<;* 3077;5/, ,!4* 7/..*(3 -;&5 A*(* !4 ,&-. .2* 2*&1:0&(.*(3 /, .2* 6&40,&-.0(*/, (**D 7/..*(5 *0.-&6*,; > 4& 6 3 &-*1&6/4 &41 /.2*(7;&-*3 !4 (**-* !.3*;, A2!-2 &;A&53 (*6&!4*1 .2* 7(!4-!7&;3*&. /, .2!3 6&40,&-.0(* *37*-!&;5 !4 .2* ,/(6 /, =&3*3/,7&!4.*1 -;&5 2*3* A/(*

*07/(.*1 !4 ;&(>* 406<*(3 ./ .2* -/04.(!*3 /4 .2* *1!.*((&4*&4&41 ;&-2 *&3 2* 2!>2 *3.!6&.!/4 !4 A2!-2 (**D &41 *37*F -!&;;5 ..!- 7/..*(5 A&3 2*;1 !3 7(/=*1 <5 .2* 406*(/03 =&3*3 2!-2 2&=* <**4 1!3F -/=*(*1 !4 ./6<3 -2!*,;5 !4 .&;5 /(*F /=*(.2*5 (*7(*3*4. &;6/3. *=*(5 7*(!/1 2* *0-*;;*4-* /, .2* A/(D6&432!7 ;!*3 !4 .2* 6&.*(!&; A2!-2 !3 =*(5 ,!4* &41 7(*F 7&(*1 A!.2 .2* 0.6/3. -&(*" &;3/ !4 .2* *0*-0.!/4 &41 !4 .2* <&D!4> .3 .2!44*33 &3 A*;,* &3 .2* 2&(14*33 /, !.3 3!1*3 *=*4 !4 =*33*;3 /, ;&(>* 1!6*43!/43 &3./4!32*3 *07*(.3 !4 30-2 6&..*(3 2* 32&7*3 &(* 6/3.;5 7(/10-*1 <5 .2* 7/..*(3 A2**;<0. &;3/ <5 2&41 !4 .2* -&3* /,=*33*;3 .//;&(>* ./ <* -/4=*4!*4.;5 7;&-*1 /4 .2* A2**;", /(*0&67;* .2* ;&(>*3 A!4*"K&(3 f 2* 7(*2!3./(!-7/..*(5,(/6 5-*4&* .2* (/&1 &41 /.2*(*;;*4!-3!.*3 A&3 &;3/ 6&1* <5 2&41 g 2*(*&3 36&;, =*33*;3 A*(* 6&1* /, & 3!4>;* 7!*-* !4 .2* -&3* /, ;&(>* /4*3 .2* </15 2&41;*3 ,**. &41 4*-D A*(* ,*32!/4*1 3*7&(&.*;5 &41 .2*4 04!.*1 2*5 A*(* ,!(3. 1(!*1 !4 .2* 304 .2*4 .A!-* <&D*1 <*,/(* &41 &,.*(.2* 7&!4.K4> 2* -/;/0(3 &(* 4/ ;*33 &16!(&<;* .2&4 .2* A/(D6&432!7 2*-;&5 32/A3 &* <*&0.!,0; <(!>2. (*11!32 5*;;/A A2!-2 !3 7(/10-*1 <5 .2* &11!.!/4 /, -/;/0(!4> 6&..*(&41 !3 &;3/ ,&(.2*(!4.*43!,!*1 <5 &.2!4 -/&.!4> /, >;&Q* 2* <;&-D -/;/0(A2!-2 /,.*4 =*(>*3 07/4 >(**4 &41 !3 /, &* <(!;;!&4./ ;03.(* !3 .2*4 &77;!*1 !.2*(8$9 .2* 1*3!>4 3.&413 /0.<;&-D &>&!43..2* <(!>2. <&-D>(/041 /(8@9 .2* ,!>0(*3 &77*&(!4 (*1 /4 & <;&-D >(/041 .2* ,/(6*(<*!4> .2* *&(;!*(6*.2/1 .2*(-/;/0(3 *37*F -!&;;5 A2!.* /(1&(D"(*1 A*(* &77;!*1 &,.*(.2* <;&-D >;&Q* 2&1 <**4 <0(4.!4./ .2* -;&5 <5 .2* 3*-/41 <&D!4> &41 3*(=*1 &3 & ;*33 ;&3.!4> &1/(46*4. 4 ;&.*(.!6*3 5*;;/A >(**4 <;0* <(/A4 &41 >/;1 A*(* &;3/ 03*1

f 4 .2* -&3* /, =&3*3 A!.2 ,!>0(*3 .2* =&3* A&3 ,!(3. 0(4*1 /4 .2* A2**; &41 !4 /(1*(./ >!=* !. & 30(,&-* /, 1**7*((*1 -;&5 ,!4*;5 >(/041 &41 6!0*1 A!.2 A&.*(./ .2* /43!3.*4-5 /, -(*&6 .*-24!-&;;5 D4/A4 &3 H 3;!7 I A&3 &77;!*1 <5 & <(032 /(/.2*(F A!3* A2!;* !. A&3 3.!;, (*=/;=!4> 2* /0.F ;!4* /, .2* 1*3!>4 A&3 4*0./(/0>2;5 3D*-2*1 *!.2*(A!.2 & 7/!4. /(!4 ;!>2."(*1 /-2(* A!.2 & <(032 2* &3* A&3 .2*4 1(!*1 !4 .2* 304 &41 &>&!4 70. /4 .2* A2**; &41 .2* >;&Q* ,!4*;5 7/A1*(*1 &41 6!0*1 A!.2 A&.*(A&3 &77;!*1 ./ !. A!.2 & <(032 &3 !.(*=/;=*1 2* =&3* A&3 .2*4 !4 3/6* -&3* ,!(*1 ,/(.2* ,!(3. !6* !4 .2* D!;4 !4 /(1*(./ 7(/=!1* 36//.2 &;6/3. 4/4"&<3/(<*4. 30(,&-* ,/(.2* 03* /, .2* 7&!4.*(2* 7&!4.*(.2*4 70. /4 .2*<;&-D*4&6*; ,!>0(*3 &41 /(4&6*4.3 A!.2 & <(032 ,.*(.2* ,!(!4>/, .2* *4&6*; .2* 1*.&!;3 A*(* 1(&A4 !4 <5 " " -&..!4> .2(/0>2 .2* *4&6*; 1/A4 ./ .2* -;&5 </15 /, .2* =&3* 4 =&3*3 A!.2 ,!>0(*3 !43.*&1 /, .2* 1 <*!4> 7&!4.*1 !4 <D0D .2* 1 " !3 -/=*(*1 A!.2 <;&-D*4&6*;&41 .2* ,!>0(*3 ;*,. 32/A!4> .2* >;&Q*1 (*1 H 3;!7 I A2!-2 -/=*(3 .2* A2/;* =&3* 2!3 6*.2/1 7(/F 10-*1 &>(*&.&(.!3.!-&1=&4-* !4 .2* <*&0.5 /, .2* ,!>0(*3 .2* 1*.&!;3 &41 !44*(;!4*3 /, A2!-2 -/0;1 <* *0*-0.*1 A!.2 ,(**1/6 &41 *&3* <5 <(032"6&(D*1 ;!4*3 !43.*&1 /, <5 .2* ;&</(!/03 7(/-*33 /, -0..!4> !4-!3*1 ;!4*3 .2(/0>2 .2* =*(5 2&(1 <;&-D*4&6*; 8 (/, !11;*./4 /4 H /..*(5 I !4 9" : O!O ?NR ?NT9 h

&3.;5 .2*,/(6 1*3*(=*3 & 7(&!3* 2* =&3*3 /, .2* <*3. 7*(!/1 7(*3*4. .2* 6/3. .&3.*,0; *;*>&4-* /, ,/(6 .2&. !3 &. /4-* ,!4* &41 3,*(/4> &41 .2* 6/3. 1*;!-&.* 7(/F 7/(.!/4 /, .2* =&(!/03 7&(.3 ./ *&-2 .2*(&41 ./ .2* A2/;* A!.2/0. !4.*(,*(!4> A!.2 .2*!(7(&-.!-&;0.;!.5# -0.3041*(1 &41 + .A&3 4/.04.!;.2* .!6*3 A2*4 .&3.* 2&1 <*>04 ./ 1*>*4*(&.* .2&. .2* ,&32!/4 A&3 !4.(/10-*1 /, >!=!4> ./ -;&5 A&(* <5 6*&43 /, 6/0;13 &;; D!413 /, >(/.*3:0* ,/(63 /, 6*4 &41 <*&3.3 &41 /, ,0(4!32!4> .2*6 A!.2 7;&3.!-8&3 A*;,* &3 7&!4.*1 /(4&6*4.&.!/4

f 2* (" /, &4-!*4.7/..*(5 !3 !;;03F .(&.*1 <5 e $ &41 @ 2* (*7(*"

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8 ,6 ,(/6 A " F 8 *6 ,(/6 !;;!4 A " !>4*.,** 9 >4*..*9

3*4.3 & 5/0.2 3*&.*1 !4 ,(/4. /, &4 /=*4 ,(/6 .2* ./7 /, A2!-2 2* .&D*3 A!.2 .A/ 3.!-D3 & 36&;, .A/"2&41;*1 =&3* A2!-2 2&3 <**4 4*A;5 >;&Q*1 2* 3*-/41 32/A3 .2* 7/..*(>!=!4> .2* ;&3.7/;!32 ./ & ,!4!32*1 =&3* A2!;* .A/ /.2*(=*33*;3 &(* 3.&41!4> ./ 1(5 /4 &4 /=*4 .2* 1//(/, A2!-2 !3 -;-Y*1 8 02;&41 ^/4*(3 ; (6 " 7 C 4> *1 9 6/4> .2*=/.!=* .&<;*.3 !4 .2* /0=(* .2*(*&(* .A/ ,(/6 /(!4.2 2* ,!(3./, .2*3* (*"

7(*3*4.3 &4 *&(;5 (**D .57* /,D!;4 A2!-2 !3 1/ 6*1 /=*(&41 2&3 & 37&-* ,/(.2* ,0*; /4 /4* 3!1* &41 & 1//(!4 .2* 3!1* /, .2* 077*(-2& 6<*(.2(/0>2 A2!-2 .2* 7/..*(5 //0;1 <* 70. !4 &41 A!.21(&A4 2* 3*-/41 32/A3 & 7/..*(&77;5!4> 7&!4.*1 <&413 A2!;* .2* =*33*; (*=/;=*3 /4 .2* A2**;P (/, !11;*./4 ,!>3 &41@N9 &;3/ W

2* - & A!.2 A2/6 &3 *&(;5 &3 .2* .!6 * /, .2* 3*-/41 D!4> 06& & >0!;1 & 1 /, 7/..*(3 *0!3.*1 4*!.2*(2&1 =*33*;3 /,7&!4.*1 -;&5 &6/4>3. .2*!(2/03*F 2/;1 >//13 4/(1!1 .2*5 *67;/5 !., /(.2* G/(4&6*4.&.!/4 /, .2*!(>(&=*3 4 *&(;!*(.!6*3 &.;*&3. .2*5 03*1 /4;5 -/&(3* &41 *4F .!(*;5 04/(4&6*4.*1 A&(* 2*5 !67/(.*1 &(.!3.!-&;;5 *0*-0.*1 =&3*3 ,(/6 .2*!(4*!>2F </0(3 .2* .(03-&43 4 .2* ;&3. 2041(*1 5*&(3 /, .2* *70<;!- &3 A*;; &3 !4 .2* ,!(3. 2041(*1 5*&(3 &,.*(2(!3. .2* -2!*, 7;&-* ,/(.2* 6&40,&-.0(* /, .2* (*1 -(/-D*(5 >*4*(&;;5 03*1 !4 2/03*2/;13 A&3 ((*.!06 B! QQ f ;!45 OOO= $?N" &(.!&; !VC ? 0!= TR" *44!3 9 !! Vg 2* A&(* /, .2!3 7;&-* A&3 1!3.!4>0!32*1 <= & G-/(&;"(*1 -/;/0(&41 A&3 >*4*(&;;5 ,0(F <!32*1 A!.2 >;&Q* &41 1*;!-&.* (*;!*,3 !4 ",&-. /(4&6*4.&.!/4 !4 (*;!*, A&3 !1*;5 G*67;/5*1 !4 ;&.*(/6&4 7/..*(5 *(5 60-2 =&;0*1 A&3 .2* 1/6*3.!- A&(* -&;;*1 " A2!-2 A&3 &4 !6!.&.!/4 /, .2* *&(;!*(7/..*(5 <(/0>2. ,(/6 .2* !3;&41 /, &6/3 . A&3 ,/(6*1 /, !4* (*1"-/;/0(*1 *;&5 <&D*1 =*(5 2&(1 /, .2!4 6&D* &41 %=*(5 1*;!-&.* A /(D6&432!7 . A&3 >;&Q*1 &41 >*4*(&;;5 &1/(4*1 A!.2 (*;!*,3 &41 3*(=*1 *37*-!&;;5 ,/(.2* .&<;* 03* /, (*F 37*-.&<;* 7*/7;* A2/ -/0;1 4/.&,,/(1 3!;=*(2!;* .2!3 ,!4* A&(* A&3 6&1* <5 2&41 .2* 6&40,&-.0(* /, /(1!4&(5 7/..*(5 &3 A*;; &3 /, <(!-D3 &41 7!7*3 *37*-!&;;5 041*(.2* 67!(* ,/(6*1 &4 !67/(.&4. !4103.(5 &6/4> -&7!.&;!3.3 A2/ /4 ,!41!4> >//1 -;&5 /4 .2*!(*3.&.*3 <0!;. 7/..*(!*3 &41 .!;*" A/(D3 &41 *!.2*(A/(D*1 .2* 6 /4 .2*!(/A4 &--/04. .2(/0>2 3;&=*3 /(2&1 .2* 6 -&((!*1 G/4<5 ;*33**3 2* *67*(/(2!63*;, &,.*(.2* .!6* /, !<*(!03 &41 .2* 6*6<*(3 /, .2* !67*(!&; ,&6!;5 *37*-!&;;5 .2* ,*6&;*3 70(30*1 & 3!6!;&(.(&1* &3 !3 32/A4 <5 .2* .(&1*"6&(D A2!-2 &--/(1!4> ./ /6&4 -03F ./6 A&3 <5 -;&5 6&40,&-.0(*3 2* 7(/10-.!/4 /, 1 3.&.0*3 /, -;&5 &7&(. ,(/6 .2* 70(7/3* /, 6/1*;;!4> ;/4>3 &6/4>3. .2* (**D3 ./ .2* *&(;5 .!6*3 . -/.!40*1 60-2 ;/4>*(&6/4>3. .2* .&;!&43 *37*-!&;;5 &6/4>3. .2* .(03"F &43 A2/ ,0(4!32*1 .2* .*67;* &. /6* A!.2 -;&5 !6&>*3 , .2* >/&3 <*./(* .0* =!-./(!/03 -&67&!>43 !4 .2* &3. </0>2. 6&(<;* &41 <(/4Q* 7(/10-.!/43 /, (**D &(. ./ /6* 4 .2* /.2*(2&41 .2(/0>2/0. .2* A2/;* /, &4.!:0!.5 .2* 6&40,&-.0(* /, -;&5 ,!>0(*3 /, =*(5 =&(!/03 D!413 ,/(.2* 1*-/(&.!/4 /, 1A*;;!4>3 &41 >(&=*3 &41 ,/(7;&5.2!4>3 ,/(-2!;1(*4 *.- A&3 6/3. *0.*43!=*;5 7(&-.!3*1 2*5 A*(* >*4*F (&;;5 6&1* !4 6/0;13 &41&,.*(<&D!4> A*(* 1*-/(&.*1 A!.2 & -/&.!4> /, -/;/0(2*

8R 9

0-;;*4-* A2!-2 (**D &(. &..&!4*1 !4 .2!3 1*7&(.6*4. &3 !4 .2*(3 !3 32/A4 <5 .2* H ,!>0(!4*3 I 1!3-/=*(*1 &. ,.4&>(& !4 &41 &,.*($RUC 37*-!6*43 /, A2!-2 &(* >!=*4 !4 ,!>3 C *(5 !67/(.&4. .//! A&3 .2* 6&40,&-.0(* /, -;&5 (*;!*,3 7&(.;5 A!.2 ,!>0(*1 (*7(*3*4.&.!/4 &41 7&(.;5 A!.2 &(&F <*3:0* 7&..*(43 ,/(.2* *6<*;;!32 6*4. /, -/;0643 A!41/A3 -/(4!-*3 &41 &;3/ /, ./6<3./4*3 &41 3&(-/72&>! W 06/4. &41 2&7;&!4 $ $RRR ^*D0; +(" 1 "' + " 1 $RUR 5 " "' + "' $RRN &41 ' + 2 "' "' "' $RRC" *0Q*5 $ R 1 1 " "

' ' ' ; ' ?N' 7;&.*3'
$RR '' &41' .2*' 7/70;&(' A/(D' <5' *..!*(' ; ' ' + ' T ' " 'd " R
: ' $RTN g

8C9' ' ' &
#(6' &4&>(&' & ('N ' $RUC'.&,' $C9

(3*/!4-.;/4*3' '
((&//' 2*' &.!4' .*(6' ,/(' &' 70<;!-'
-(!*(' 30-2' &3' .2/3*' A2/' A*(*' *67;/5*1' !4'
7(!=&.*' ;!,*' *37*-!&;;5' &.' &0-.!/43' 2*!('
7(/,*33!/4' A&3' *6!4*4.;5' ;0-(&.!=*' <0.' A&3'
4/.' -/43!1*(*1'&.'&;;' (*37*-.&<;*' !6!;&(;5'
.2/3*' *67;/5*1' <5' .2*' .&.*' (&4D*1' &3' .2*'
6/3.' !43!>4!,!-&4.' /,' !.3' 7&!1' 3*(=&4.3' & '
2*!('10.!*3' A*(*' ./'3066/4'
.2*' 6**.!4>3' /,' .2*' 7*/7;*' &41' .2*' *4&.*'
./' -/66&41'3!;*4-*' ./' 7(/-;&!6' &;/01' .2*'
7(/7/3&;3' 041*(' -/43!1*(&.!/4' ./' &44/04-*'
.2*' (*30;.' /,'.2*' !41!=!10&;' =/.*3' &41' &;3/'
.2*' ,!4&;' (*30;.' !4' ;*>&;' 7(/-**1!4>3' ./'
-!.*' .2*' 7&(.!*3' ./' .2*' *&3*' .2*!(' -/043*;'
&41' A!.4*33*3' ./' &44/04-*' .2*' -;/3*' /,'
.2*' 7(/-**1!4>3' &41' .2*' K0(53' 1!36!33&;*'
./'!4=!.*' .2*' 7*/7;*' ./',04*(&;',*&3.3' &41' ./'
>&6*3' &41' ./' &33!3.'&.' 70<;!-'&0-.!/43' &41'
/.2*(' 3&;*3' *.-' '*.-' /430;3' 7(3*./(3' &41'
-*43/(3' 2&1' .2(**' 1*-0(!*3' /,' 30-2' &..*4F
1&4.3' ' :063./(3' &41' 7(!<&<;5'&;3/' .(!<04*3'
&41' 3*1!;*3' /4*' 2*5' &;3/' &..*41*1' /4'
*0.(&/(1!4&(5' 6&>!3.(&.*3' &41' 4>/=*(4/(3'
/,' 7(/=!4-*3

4&*,*-.2(&' 4' .&;!&4' ./A432!7' 7/3F
3*33!4>' 4/' K0(!31!-.!/4' /,' !.3' /A4' <0.'
2&=!4>' &' 7(*,*-.' ./' &16!4!3.*('K03.!-*' & 2'
' ' " '3*4.' ./' !.' *=*(5'5*&('
>*4*(&;;5'/4' .2*' 4/6!4&.!/4' /,' .2*'

" ' 2*4' &;' .&;!&4' ./A43' (*-*!=*1'
,0;' -!.!Q*4' (!>2.3' TN' ' (' .2*3*' . A43'
&6/4>' .2*' (*3.' <*-&6*' ") ! ' & '
0 !-! (/ 9' &41' (*.&!4*1' .2*' /;1' 4&6*'
6*(*;5'&3'&'.(&1!.!/4
(&*,*-.038/4*'3*.'/=*(' /.2*(3' &' 307*(!/(9'
2*' .!.;*' >!=*4' <5' .2*' /6&43' ./' /,,!-!&;3'
/,' 6&45' D!413' A2/' A*(*' &;;' 2/A*=*('
&77/!4.*1' 4/.' *;*-.*1' 203' 041*(' .2*'
70<;!-' ' ' " ' A&3' .2'
4&6*' /,' .2/3*' A2/' A*(*' &77/!4.*1' <5' .2*'
7(&*./(' ./' &16!4!3.*('K03.!-*'!4' .2/ *' .&;!&4'
-/6604!.!*3' A2!-2' A*(*' -&;;*1' '
& ' *=*4' ;&.*(' .2*3*' ./A432!73' (*.&!4*1'
.2*' 4&6*' ,/(' .2*' K01>*3' *;*-.*1' <5' .2*6F
3*;=*3' 4' .2*' (*70<;!-&4' &(6!*3' .2*' 3!0'
/6&4' /,,!-*(3' &77/!4.*1' <5' .2*' -/430;3'
./' -/66&41' .2*' -/4.!4>*4.3' 3*4.' <5' .2*'
.&;!&4' &;;!*3' ./' .2*' -/430;&(' &(6!*3' *(*'
-&;;*1' ' / 3 '"8/,,!-*(3'!4'-/66&41'
/,' .2,*' &;;!*39' A2!;*' .2*!(' -/2/(.3' *(*' ;*1'
<5' 4&.!=*' ' (' 4' .2*'
.!6*3' /,' .2*' 67!(*' .2*3*' .!.;*3' A*(*'</(4*'
<5' .2*' -/66&41*(3/,' .2*' &00!;!&(5'-/2/(.3'
A2!;*' .2*' /,,!-*(3' /,' .2*' -&=&;(5'1!=!3!/43'
A*(*' @ ' ' !;!.&(5'*4>!4**(F
!4>' A&3' 041*(' .2*' 1!(*-.!/4' /,' &' '
' 87!/4**(39" .2*' 3*=*(&;' ,;**.3' /,'
.2*' 67!(*' 041*(' &' ' L L' & '
$ ' , ' ' 8-&67"-/6F
6&41*(9' A&3' .2*' 4&6*' 041*(' .2*' 67!(*'
/,' .2*' -/66&41*(' !4' .2*' 7*(6&4*4.' &673'
/,' .2*' ;*>!/43' 030&;;5' &' -*4.0(!/4' A2/' 2&1'
-/67;*.*1' 2!3' .*(6' /,' 3*(=!-*' ! ' -2!*,'
,04-.!/43' *(*' !4' .!6*' /,' 7*&-*' .2' 3..7*('
!4.*41' >&((!3/4"3*(=!-*' & ' ./' 1!3.(!<0.*'
.2*' A&.-2*3' &41' ./.2*(' 10.!*39' !4' A&(' .2*'
&((&4>*6*4.' &41' 307*(=!3!/4' /,' .2*' -&67'
.2*' .(&437/(.&.!/4' /,' .2*' <&>>&>*' &41' .2*'
-/43.(0-.!/4' /,' (/&13' <(!1>*3' &41' *4.(*4-2F
6*4.3' 2!3' .!.;*' /,' ' A&3' &;3/'
>!=*4' ./' .2*' D4!>2.' A2/' -/66&41*1' .2*'
;*>!/43' 3.&.!/4*1' !4' >57." A2!;*' &2'!6F
7*(!&;' >/=*(4/(' -&;;*1' ' . 1: '
&16!4!3.*(*1' .2&.' -/04.(5' A2!-2' A&3'
.(*&.*1' &3' &4' !67*(!&;' 1/6&!4' &41' /0.3!1*'
.2*' >*4*(&;' 7(/=!4-!&;' &16!4!3.(&.!/4' .'
&' ;&.*(' .!6*' *&-2' ;*>!/4' 2&1' 07/4' !.3' 3.&,,'
/,' /,,!-*(3' !.3' /A4' -/66&41*(' /,' .2*' -&67'
3.5;*1' ' 1 " ' ./' A2/6' !4' '
' *=*4' .2*' -/66&41' /,' .2*' ;*>!/4' A&3'
.(&43,*((*1' , ' 1 "' A&3' .2*'
-/66&41*(' /,' .2*' -/2/(.3' /(>&4!Q*1' <5'
0>03.03' ./' 6&D*' /6*' 3*-0(*' <5' 4!>2.
' =*(5'2!>2'&41' !4,;0*4.!&;' /,,!-*' 041*('
.2*' 67!(*' A&3' .2&.' /,' .2*' 2
' .2*' -/66&41*(' /,' .2*' !67*(!&;' >0&(1'
& ' 3 ! !9' (!>!4&;5' &' 70(*;5'
6!;!.&(5' /,,!-*' !.' &-:0!(*1' !4' 7(/-*33' /,

.!6*'&4'*=*("!4-(*&3!4>'!67/(.&4-*' .'2&1'
&..&-2*1' ./' !.' .2*' -/4.(/;' /,' &,,&!(3' !4' .2*'
67(/(3' &<3*4-*' -(!6!4&;' K0(!31!-.!/4'
/=*(' .&;!&43' /0.3!1*' /6*' &41' .2*' ;!D*'
/6*.!6*3' &6<!.!/03' 6*4' -/4.(!=*1' ./'
*67;/5' .2!3' 7/3!.!/4' ./' /<.&!4' ,/(' .2*6F
3*;=*3' .2*' (*&;' 7/A*(' !4' .2*' .&.*' &41'
(&!3*1' A2/6' .2*5' 7;*&3*1' ./' .2*' !67*(!&;'
.2(/4*' 3/6*.!6*3'&3-*41!4>' !.' .2*63*;=*3'
,.*(' .2*' 7(&*./(!&43' A*(*' 1!3<&41*1' <5'
/43.&4.!4*'!4'R@C' .2*',/0(' A2/' A*(*' .2*4'
' ' ' 6&1*' >/=*(4/(3'/,'
.2*',/0(' !4./'A2!-2' .2&.'*6F
7*(/(' 1!=!1*1' 2!3' 1/6!4!/43' 4/.2*('
!67/(.&4.'/,,!-*' 041*(' .2*' 67!(*'A&3'.2&.'
/,' .2*' 7 ' 8-!.5'7(*,*-.9' 0-2'
K4' /,,!-*' 2&1' *0!3.*1' !4' .2*' .!6*' /,' .2*'
D!4>3' &41' !4' .2*' *&(;5'5*&(3' /,' .2*' *F
70<;!-' ./'3077;5'.2*' 7;&-*' /,' .2*' D!4>' /('
.2*' -/430;3'A2*4'&<3*4.' 2*4'.2*';&..*('
M&6*' ./' <*' (*7(*3*4.*1' <5'.2*' 7(&*./(3'!.'
A&3'/4;5'10(!4>'.2*' ' ; " 7'8&.'A2!-2'
,*3.!=&;'&;' 6&>!3.(&.*3'A*(*'7(*3*4.9'.2&.'&'
' ' ' ; " 'A&3'&77/!4.*1'
4>03.03'(*=!=*1'!.'!4'!.3'/;1',/(6' 4'
3*=*(&;'/--&3!/43'2*' &77/!4.*1'&' C '
'10(!4>'2!3'&<3*4-*',(/6'.2*'-!.5' 2*'
.!.5'7(*,*-.0(*' ,!(3.'<*-&6*' &' 3.&41!4>'
3,,!-*',/(' .2*' 6&!4.*4&4-*' /,' 70<;!-' /(1*('
!4' /6*'&,.*(' !<*(!03' 0<3*:0*4.;5'.2*'
' '8A2/3*' &0.2/(!.5'*0.*41*1'
'2041(*1'6!;*3',(/6' /6*'&41'A2/' 2&1'
.2(**' -!.5'-/2/(.3'./' &33!3.'2!6g'*0*(-!3*1'
./>*.2*('A!.2' .2*'7/;!-*' &0.2/(!.5'*4,/(-*1'
!.' &4'*&(;!*('7*(!/1'<5'.2*'3*1!;*3'&' -/((*F
;&.*1'-(!6!4&;'K0(!31!-.!/4'A2!-2'!4'-/0(3**
9,'.!6*'*07&41*1'3/' 60-2'.2&.'.2*'-!.5'7(*F
,*-.0(*'<*-&6*'.2*' 2!>2*3.'-(!6!4&;'&0.2/F
(!.5'&.' /6*' ,.*(' .2*' .(&43,*(' /,' .2*'
3*&.'/,'*67!(*'./' 5Q&4.!06'.2*'
'04!.*1'!4'2!63*;,' .2*' 6!;!.&(5'&16!4!3F
.(&.!=*'&41'K01!-!&;' 7/A*(3' !4' A2&.'A&3'
4-*' .2*'-&7!.&;' &41'A&3'4/A',/(6*1'!4./'
'3*7&(&.*' 1!3.(!-.',/(' 70(7/3*3'/,' &16!4!3F
.(&.!/4' 4*/,' .2*'6/3.'!67/(.&4.'/,,!-*'3
041*(' .2*' 67!(*'A&3'.2&.'/,' (' E '
Q"" " '8-/(4"3077;5' ' A2/3*'
!0.5'!.'A&3'./'7(/=!1*' /6*'A!.2' .2*'4*-*3F
3&(5'-/(4'&41'A2/3*'-/04.;*33'30<&;.*(43'
A*(*'1!3.(!<0.*1'/=*(' .2*' A2/;*' 67!(*'
/(' .2*' ' '8.&.*'-2*3.9' '
$A &
(3*.*0.&'/(' 7(3*.*0.&.&'83-8<,;,19' '
-;&33'/,' /6&4'.(&>*1!*3'A2!-2',/041'!.3'
6&.*(!&;3'4/.'!4'.2*' (**D'65.23'<0.'!4'
.2*'&<3*4-*'/,'4&.!=*';*>*41&(5'2*(/*3'!4'
&4-!*4.'&41'-/4.*67/(&(5' /6&4'2!3./(5'
2*'4&6*'A&3'1*(!=*1',(/6'.2*',&-.'.2&.'
.2*'2*(/*3'A/(*'.2*'4&.!/4&;'1(*33'.2*
1' - 8.-'/,,!-!&;'>&(<'*1>*1'A!.2'
70(7;*'/,'.2*' /6B'6&>!3.(&.*3' >
!4.(/10-*1'.2*6'&41K,/;;/A!4>'2!3'*0&67;*'
.2*'-2!*,'(*7(*3*4.&.!=*3'/,'.(&>!-'&(.'041*('
.2*' *70<;!-'.!" ' '&41' '
-/67/3*1'!4'&11!.!/4'./' .(&>*1!*3'!6!.&.*1'
,(/6' (**D'/(!>!4&;3'!41*7*41*4.'7;&53'/,'
.2!3'D!41'A2!-2'A*(*'2/A*=*('-&3.'!4'.2*'
,/(6'.2*5'2&1'</((/A*1',(/6'.2*' (**D3'
'&;3/'2&(' /,'3/6*'7;&53'/,'.2!3'-;&33'
A(!..*4'<5'7/*.3'/,'!67*(!&;' .!6*3' 2*'
3/;!.&(5'*O&67;*'7(*3*(=*1'./' 03' !3'.2*'
.(&>*15'/,' $ 'A(/4>;5'&3-(!<*1'./'
4-&'& 'A2!-2'7*(2&73'6&5'1&.*',(/6'
E' %$ ' $1& &(
(&*./(' (!>!4&;;5'&'.!.;*'/,'.21' /6&4'
-/430;3'<0.'&,.*(A&(13'03*1'./'1*4/.*'.2&.'
6&>!3.(&.*' ./' A2/6' .2*' &16!4!3.(&.!/4'
/,'K03.!-*'!4' /6*' &3'.(&43,*((*1'A2*4'
.2*'-/430;32!7'./' A2!-2'!<!3'7/A*(' 2&1'
2!.2*(./'<**4'&..&-2*1'A&3'.2(/A4'/7*4'
./' .2*' -/66/43'!4' ??' ' ' .',!(3.'(*F
3*(=*1',/(' .2*'7&.(!-!&43'!.'<*-&6*'&'7;*F
<*!&4'/,,!-*'&3'*&(;5'&3' U' 2*'7(&*./('
&3'*;*-.*1'!4'.2*' " 'A!.2'
/4*'/,'.2*'-/430;3'7(*3!1!4>'/4'.2*'3&6*'
1&5'&41'A!.2'.2*'3&6*'&037!-*3'&3'.2*'
-/430;3'A2/'*4.*(*1'/4'.2*!('/,,!-*'3!60;F
.&4*/03;5'A!.2'2!6'' 4'&--/04.'/,'.2*'
!4-(*&3*'!4';*>&;'<03!4*33'&'3*-/41'7(&*./('
A&3'&77/!4.*1'!4'@C@'./'A2/6'A&3'.(&43F
,*((*1'.2*'2*&(!4>'/,'-&3*3'<*.A**4'-!.!Q*43'
&41',/(*!>4*(3'# " ' ' ' 1 " D'
&41'<*.A**4',/(*!>4*(3'# " ' 1 " %'
;52!;*'.2*'./.2*('1*-!1*1'<*.A**4'-!.!Q*43'
2*';&..*('A2/'(&4D*1',!(3.'A&3'-&;;*1'
' " '8-!.5'7(&*./(9'.2*',/(6*('
' " ' 1 " '&41'8&,.*('.2*'.!6*'
/,' *37&3!&4g ' 1 "
2*'7(&*./(3'2&1'.2*!(' (*37*-.!=*' 1*F
7&(.6*4.3'1*.*(6!4*1'<5';/.'&,.*('.2*!('
;-.!/4' 2!;*' .2*' ' 1 " '
6!>2.'2&=*'&'6!;!.&(5'-/66&41'&;3/'*4F
.(03.*1'./'2!6'.2*'-!.5'7(&*./(' '&--/04.'
/,'.2*'!67/(.&4-*'/,'2!3'/,,!-*'6!>2.'4/.'
<*'&<3*4.',(/6' /6*'3.(!-.;5'37*&D!4>'
,/(';/4>*('.2&4'.*41&53' *' (*7(*3*4.*1'
2!3'&<3*4.'-/;;*&>0*'&41'&;3/'.2*' -/430;3'
!4'.2*!('&<3*4-*'7(*3!1!4>'&3'.2*'2!>2*3.'
6&>!3.(&.*'7(*3*4.'&.'.2*'70<;!-'>&6*3'
A&.-2!4>'/=*('.2*' " ' 2/;1!4>'.2*'
6!;!.&(5';*=!*3'&41'.2*' 3'*&(;5'&3'
@@U'.2*'406<*('A&3',0(.2*('!4-(*&3*1'<5'
.A/' /'.2*3*'A&3'*4.(03.*1'.2*'&16!4!3F
.(&.!/4'/,' !-!;5'&41' &(1!4!&' A/'/.2*(3'
A*(*'&11*1'!4'EOM'./'&16!4!3.*('.2*'.A/'
7(/=!4-*3'/,' 7&!4' 4'EPO'/4'.2*'*3.&<F
;!326*4.'/,'.2*' " ' '# 2=D

&' 3.&41!4>' -(!6!4&;' -/0(.' ,/(' -*(.&!4' 3.&.*1' '/,,*41*(3' .2*' (0;*' A&3' !4.(/10-*1' .2&.' .2*' *4.!(*' </15'/,' 7(&*./(3'32/0;1' 3.&5' !4' /6*' 10(!4>' .2*!(' 5*&(' /,' /,,!-*'' .2*' 7(&*./(3' '' &41' '' 1 '' '2&=!4>'K0(!3F 1!-.!/4'!4'-!=!;' -&3*3'&3'2!.2*(./' A2!;*' .2*' /.2*(3' 7(*3!1*1' !4' .2*' '' &41' 2&1' ./' !43.(0-.' .2*' K0(/(3'&3'./' .2*' -&3*' <*,/(*' .2*' -/0(.' &41' ./' -&((5' /0.' .2*' 3*4.*4-*' 7&33*1' ,.*(' .2*' -/67;*.!/4'/,' .2*!(' 5*&(' /,' /,,!-*' .2*5' &;;' 7(/-**1*1' &3' ' /(' '' ' .2*' 7(&*./(!&4' 7(/=!4-*3' &33!>4*1' .2*6' <5' ;/.' 4' -/43*:0*4-*' /,' .2*' 60;.!7;!-&.!/4'/,' .2*' '' &41' /,' .2*' 7(/=!4-*3' .2*' 406<*(' /,' 7(&*./(3'A&3' (&!3*1' <5' 0;;&'./' *!>2.' <5' &*3&(' ./' .*4' ,/0(.**4' &41' 3!0.**4' 41*(' .2*' 67!(*' .2*' 7(&*./(32!7' ;/3.' !.3',/(6*(' !67/(.&4-*' .2*' -!=!;'K0(!31!-.!/4'/,' .2*' ' ' &41' 1 '' <*!4>' !4' 7&(.' .(&43,*((*1' ./' .2*' ' &41' ' 2 2 ' A2!;*' .2*' -(!6!4&;'K0(!31!-.!/4'/,' .2*' /.2*(3' -*&3*1' A!.2' .2*' >(&10&;' 1*-&5'/,' .2*' '' &41' .2*' 7(&*./(3'/4;5' (*.&!4*1' 7&(.!-0;&(' 1*7&(.6*4.3' /,' .2*!(' K01!-!&;' 7/A*(' &41' >*4*(&;' &16!4!3.(&.!/4' 2*!(' 6/3.' !67/(.&4.',04-.!/4' A&3' .2*' 6&4&>*F 6*4.' /,' .2*' >&6*3' 3/6*' /,' A2!-2' 2&1' &;(*&15' !4' (*70<;!-&4' .!6*3' <**4' &33!>4*1' ./' .2*' ' 2*4' .2*!('5*&('3 /,,!-*' 2&1' *07!(*1' .2*5' A*4.' &3' ' ./' .2*' 3*4&./(!&;' 7(/=!4-*3' 2*!(' *;*-.!/4' A&3' .(&43,*((*1' ./' .2*' *4&.*' <5' !<*(!03' 41*(' .2*' *70<;!-' .2*' 3.&.0./(5'&>*' ,/(' .2*' /,,!-*' A&3' ,/(.5'' 041*(' .2*' 67!(*' .2!(.5' 2*' 7(&*./(3' " 1" ' A*(*' .2*' 1' - ' .2*' ' &41' !4' .2*' 7(/=!4-*3' 3!0' ;!-./(3' !4' /6*' 7(/F <&<;5' .A/' !D*' .2*' -/430;' 2*' 2&1' .2*' 2/4/0(' /,'&' .(!0672'/7*4'./' 2!6 (&*./(,&4!' 2*' </15>0&(1' /,' .2*' /6&4' *67*(/(' =*4' !4' .2*' &(6!*3' /,' .2*' *70<;!-'.2*(*' A&3'&3'3*7&(&.*'-/(73'.2*' (' ' ./>0&(1'.2*' >*4*(&;' &41' 7(/.*-.' .2*' 2*&1:0&(.*(3' 2*'/(>&4!Q&.!/4' /,' &' </15>0&(1' ,/(' .2*' *67*(/(' /4*' /,' A2/3*' 7*(6&4*4.' 7/A*(3' A&3' .2*' -2!*,' 6!;!.&(5'-/66&41'A&3'&6/4>'.2*',!(3.'&1F 6!4!3.(&.!=*' 6*&30(*3' /,' 0>03.03' 2*' 307(*6*' -/66&41' A&3' **4*'(&;;5' 2*;1' <5' .A/' ' !4' .2*' *67*(/(3' 4&6*' 2*' >0&(1'-/43!3.*1'/,' 4!4*' &41'&.' &';&.*(' .!6*' /,' .*4' (' *&-2' -/67/3*1' /,' .*4' -*4.0(!*3' /,' !4,&4.(5' &41' .*4'3:0&1(/43' /,' -&=&;(5'& ' &41'-/6F 6&41*1'<5'&' "" '# ' (') (' 2*5' 2&1' 2!>2*(' (&4D' &41' 7&5' .2&4' .2*' ;*>!/43' &41' &' 32/(.*(' .!6*' /,' 3*(=!-*' 83!OF .**4' 5*&(3' !43.*&1' /,' .A*4.59' 2!;*' .2*) ' ' (/.2*(' -/2/(.3' A*(*' 3.&.!/4*1' &.' =&(!/03' 7;&-*3' !4' .&;5' A2*(*' .2*' *67*(/(3' A*(*' !4' .2*' 2&<!.' /,' 3.&5!4>' .2*(*' A*(*' :0&(F .*(*1' !4' /6*' ./' D**7' A&.-2' !4' .2*' *6F 7*(/(3'7&;&-*' .2(**-/2/(.3' A2!-2' &.' ,!(3.' A*(*' <!;;*.*1' /4' 3*7&(&.*'7&(.3'/,' .2*' -!.5' 04.!;' 041*(' !<*(!03' .2*5' A*(*' 7;&-*1' !4' &' ,/(.!,!*1' -&67' # ' ./' .2*' 4/(.2"*&3.' /,' .2*' -!.5' /0.3!1*' .2*' 11 ' 5' <*!4>' .203' 04!.*1' .2*5' >&!4*1' 30-2' !67/(.&4-*' .2&.' .2*5' A*(*' &<;*' ./' (&!3*' &4'*67*(/(' ./' .2*' .2(/4*'&41'./' /=*(.2(/A' 2!6' /' <(*&D' 1/A4' .2*!(' !4,;0*4-*' &41' ./' 6&D*' .2*6' 3!67;5' &' 7!-D*1' -/(73' *7.!6!43' =*(03'./A&(13'.2*' *41' /,' .2*' 3*-/41' -*4.0(5' <(/0>2.' ;*>!/43' ./' .&;5' &41' 6&1*' &' (*>0;&.!/4'.2&.'.2*'>0&(1'A2!-' 2&1' 2!.2*(./' <**4' (*-(0!.*1' *O-;03!=*;5' ,(/6' .&;5'&41'&' ,*A' /6&4!3*1'7(/=!4-*3' 32/0;1'2&=*' !.3' (&4D3',!;;*1' 07' ,(/6' 1*F 3*(=!4>';*>!/4&(5'3/;1!*(3'&41'32/0;1'3*(=*' ,/(' &';/4>*(' .!6*' /' <*' .203' .(&43,*((*1' ./' .2*' >0&(1' A&3' -/43!1*(*1' &' 7(/6/.!/4' 2*' >0&(1'A&3'<(/D*4'07' <5' /43.&4.!4*' .2*' (*&. (&3./(;06' 2*' 2*&1:0&(.*(3' !4' .2*' /6&4'-&67' &'A!1*' 37&-*' /4' A2!-2' 3.//1' .2*' >*4*(&;3' .*4.' .2*' &;.&(' /,' .2*' -&67' .2*' 1 '&41'.2*' '' '& ' ' 4' .2*' 7(/=!4-*3' .2!3' 4&6*' A&3' >!=*4' ./' .2*' ,,!-!&;'(*3!1*4-*' /,' .2*' >/=*(4/(' (3*=&(!-&.!1' & ' H 1*=!&.!/4' ,(/6' .2*' 3.(&!>2.' 7&.21' 9' 2*' &.!4' .*(6' ,/(' .2*' !67(/7*(' -/410-.' /,'&' -&3*' /4' .2*' 7&(.' /,'&' 7(/3*-0./(' !4' ,&=/0(' /,' .2*' 1*,*41&4.' /(' /4' .2*' 7&(.' /,'&' '' ' ./' .2*' 1*.(!6*4.' /,' 2!3' -;!*4.' 2*' 7*4&;.5' A&3' ,/(,*!.0(*' /,' .2*' (!>2.' ./' 7(/3*-0.*' &41' ./' &-.' &3' &4' &1=/-&.*' ,' .2*' &-:0!..&;' /,' .2*' 1*,*41&4.' A&3' 1*6/43.(&<;5' 10*' ./' ' .2*' -&3*' 6!>2.'<*' 041*(.(&D*4'&4*A' <5'&' 3*-/41' 7(/3*-0./((&41!06' 2*' 3*-/41' 6/(4!4>' 6*&;' /,' .2*' /6&43' & ') (&.!4&3' f 2*' :0&4.!.5' /,' .2*' 3*-/41' 35;;&<;*' !3' 04-*(.&!4' 7/<&<;5' "1' !-D' 6 ', " "2" "' 7' 000=' 1*(!=!4>' !.' ,(/6' ' /(!-',/(' ' 6&D*3' !.' &' -/;;&.*(&;',/(6' ' O " [' (**D' 1(&6&.!3.'/,' 2;!03'A2/' ;!=*1'&</0.' CT?' '&.' .2*43' *'A&3'&'-/4.*67/(&(5' &41'(!=&;'/,' 3-25;03'&41'!3'<*;!*=*1'./'2&=*' !4=*4.*1'.2*' 3&.5(!-'1(&6&' .' &45'(&.*' 2*' A&3'&'=*(5'7(/;!,!-'A(!.*('!4' .2!3'1*7&(.F 6*4.'/,';!.*(&.0(*' *'&;3/'A(/.*'.(&>*1!*3' 1!.25(&6<3' &41' . : (' /,' A2!-2' A*' 7/33*33'&' ,&!(;5';/4>'&41' 2!>2;5'/(!>!4&;' ,(&>6*4.'f7(*3*(=*1'<5' .2*43*03'0!=*'?$Uh' !3'3/4' (!3.;&3'A&3'&;3/'&'1(&6&.!-'7/*.

(&Q!;;&' ,' !-5/4" & (**D' 7/*.*33' &</0.' CVN' -/67/3*1' 25643' &41' 1!.25F (&6<3' <0.' A&3' *37*-!&;;5',&6/03' ,/(' 2*(' *' /4;5'7/33*33' !43!>4!,!-&4.' ,(&>F 6*4.3' /,'2*('7/*63

(&0!.*;*3' 4*' /,'.2*' 6/3.',&6/03' (**D' 3-0;7./(3' </(4' &.' .2*43' &</0.' TN' f7(/<F &<;5' .2*' 3/4' /,' *72!3 1/.!!3' .2*' 3-0;7./(' /,'.2*' 3.&.0*' /,' 9 , " '& '@ (' (' '"R " ' , [' *' &41' 2!3' 3/6*A2&.' /;1*(' -/4.*67/(&(5' -/7&3' A*(*' &.' .2*' 2*&1' /,' .2*' ;&.*(' ..!-' 3-2//;' d *' -2!*,;5' A/(D*1' !4' 6&(<;*' <0.' &.' .2*' 3&6*'.!6*' /--&3!/4&;;5' 03*1' <(/4Q*' !3' (*-/(1*1' A/(D3' *02!<!.' *=*(5'&>*' &41' 3*O' !4' .2*' >(*&.*3.' =&(!*.5' /,' .2*' 1!=!4*' &41' 206&4' ,/(6' .!;;' 2*' 7&!1' 6/3.' &..*4.!/4' ./' 5/0.2,0;' ,!>0(*3' A2!-2' >&=*' 2!6' .2*' /77/(.04!.5' /,' 1!3F 7;&5!4>' &;;' .2*' -2&(6'/,' 3*430/03' >(&-*' !4' 3/,.' &41' 1*;!-&.*' -/4./0(3

8;!Q&(1"3;&5*(9' !4' <(/4Q*' f,?' 'OOO!=' UNg" &41' &'5/0.2,0;' : ' !4' .2*43' f &03&4!&3' !' @N' $g' 3'./'.2*'>(/07' /,' ! <*3'-2!;F 1(*4' 7(*3*(=*1' &.' /6*' !4' ;!45 3' .!6*' !.' A&3' 1!370.*1' *=*4' &6/4>' .2*' &4-!*4.3' A2*.2*(' !.' A&3' .2*' A/(D' /,' (&0!.*;*3' /(' &3' !3' 6/(*' 7(/<&<;*' /,' -/7&3' f ' 'OOO=!' ' @R" ' ' W' ,' &;;' .2*3*' /4;5' ;&.*(' -/7!*3' 2&=*' <**4' 7(*3*(=*1' 4'!6F 7/(.&4.' /(!>!4&;' A/(D' <5' 2!6' f6*4.!/4*1' <5' &03&4!&3' =' $U' ' g' A&3' 04*&(.2*1' !4' $RUU' <5' .2*' *(6&4' *0-&=&./(3' &.' ;567!&' '@ (' (' $('5 ": ' "' (' 2 ' A2!-2' A&3' 3*.' 07' !4' .2*' ' /,' .2*' .*67;*' /,' *(&' 2*' &(63' &41' ;*>3' &(*' 7&(.;5' 60.!;&.*1' <0.' /.2*(A!3*' !.' !3' !4' &4' *0-*;;*4.' 3.&.*' /,' 7(*3*(=&.!/4' # ' -0.9

!3' 3/43' *72!3111.03' .2*' 5/04>*(' &41' !6&(-2!1*3' A*(*' 6&3.*(3' /,' 3/6*' !67/(.&4-*

(!&6'8 (', # &.', ' /4' /,' & 6*1/4' &41' .(56/' <(/.2*(' /,'(!.2/403' &41' *3 4*' .2*' ;&3.' D!4>' /,' (/5' (!>!4&;;5' 2!3' 4&6*' A&3' 1&(-*3' 8.2*'3A!,.",//.*19' .2*'4&6*' (!&603'A2!-2' !3' !4.*(7(*.*1' ./' 6*&4' H'(&43/6*1 I' !3' 3077/3*1'./'2&=*'<**4'>!=*4'./'2!6'&,.*(' .2*' ,!(3.'3&-D!4>'/,' (/5'<5' *(&-;*3' *(&-;*3' &;;/A*1' *3!/4*' ./' 3*;*-.' /4*' /,' .2*' 7(!3/4*(3'&41' A2*4' 32*' 1*-!1*1'!4' ,&=/0(' /,' 2*(' 3/;*' 30(=!=!4>' <(/.2*(' 32*' A&3' 7*(6!..*1' ./' (&43/6' 2!6' A!.2' 2*(' =*!;' *>*413' (*7(*3*4.*1' 2!6' &3' (!-2' &;!D*' !4' .(*&30(*3'&41' !4' -2!;1(*4' *' 2&1',!,.5' 3/43'&41',!,.5'1&0>2.*(3'<5'1!,,*(*4.'A!=*3' <5' 2!3' 3*-/41' A!,*' *-.!<&'8 (' (' &;/4*' 4!4*.**4' 3/43" &6/4>' .2*6' *-./(' &(!3' *;72/<03' ;*403' <;51/(03' (/;;03' <5' 2!3' ,!(3.' (!3<*' 3&-03' 6/4>' 2!3' 1&0>2.*(3' A*(*' (*03&' .2*' A!,*' /,' 4*&3' &33&41(&' &41' 1;50*4&' 4' 2!3' 5/04>' 1&53' 2*' A&3' &' 6!>2.5' A&((!/(' &3' !4' .2*' -/4,;!-.' A!.2' .2*' 6&Q/43" <0.' &.' .2*' /0.<(*&D' /,' .2*' (/&4' &(' 2*' A&3' 3/' /;1' &41' ,**<;*' .2&.' 2*' .//D' 4/' 7&(.' !4' .2*' -/6<&.' &41' /4;5' .A!-*' ;*,.' .2*' -!.5'./' -/4-;01*' .2*' -/67&-.' ,/(' .2*' 10*;' <*.A**4' &(!3' &41' *4*;&03' &41' ./' <*>' .2*' 1*&1' </15' /,' *-./(',(/6' -2!;;*3' *' 6*.' 2!3' 1*&.2' !4' .2*' 3&-D' /,' .2*' -!.5'<5' .2*' 2&41' /,' */7./;*603' &.' 2!3',&6!;5'&;.&('A2!.2*(' 2*' 2&1',;*1' A!.2' *-0<&' &41' 2!3' 1&0>2.*(' (;&7*;&' -/;;*-.!/4' /,' 3/6*' *!>2.5' *;*>&4.' <0.' !41*-*4.' &.!4' 7/*63' !4' =&(!/03' 6*.(*3' !4' .2*' 30<!*-.' /,' (!&703' 01>!4>' ,(/6' .2*!(' *0*-0.!/4' .2*5' 6&5' <*' (*,*((*1' ./' .2*' .!6*' /,' 0>03.03' &41' 6&5' 7(/<&<;5' <*' .(&-*1' ./' .2*' -!(-;*' /,'

' 9 ' ']
8 ;(67!&9

B6/4>' 2!3' 6/3.' -*;*<(&.*1' A/(D3' .2*' K*1' (' /,' 4!103' 3.&413' ,!(3.' 3/(1!4>' ./' .2*' *4.203!&3.!-' 1*3-(!7.!/43' .2*' &4-!*4.3' &' 6&3.*(7!*-*' /,' .2*' !3.' *4.(&4-!4>' <*&0.5' % 1' ;!45' > ' ' O=!!' `'`' @N' @$" ' ' ,!>' @g' .n;*33' ,&6/03' A*(*' 2!3' (*7(*3*4.&.!/43' 9 ' &6/4>' A2!-2' .2*' 6&(<;*' 3.&.0*' 2*37!3*' A&3' *3.**6*1' 6/3.' 2!>2;5' W (' @@" ' W' 2!3' ' J / /"G

33&;&' A2/ ';!D' /.2*('1!3.!4>0!32*1' 6*4' /,' .2&.' &>*' /--07!*1' 2!63*:,' A!.2' .(!=!&;' &603*6*4.3' /,' .2!3' D!41

(;&743' --/(1!4>' ./' .2*' 030&;' &-F -/04.' 3/4' /,' !/45303' &41' 72(1!.*' &' >/1' /,' .2*' ,(0!.,0;4*33' /,' .2*' ,!*;1' &41' /,' .2*' 2*(13' /(.!-0;.0(*'=!4*">(/A!4>'>/&.' &41' 32**7"<(**1!4>' <**"D**7!4>' &41' *=*4' ,!32!4>' A*(*' 3077/3*1' ./' <*' 041*(' 2!3' 7(/.*-.!/4' 2*'/(!>!4&;'3*&.'/,'2!3'A/(32!7' ;&5'!4'.2*'./A43'/,'3!&' !4/('3!.0&.*1'/4' .2*' *;;*37/4.'*37*-!&;;5' &673&-0DB' (/6' 2*(*'!.'&,.*(A&(13'37(*&1'/=*(' (**-*' &41' .&;5' !3'3.&.0*3'A*(*' 030&;;5'7;&-*1'!4' >&(1*43'>*4*(&;;5'!4'.2*',/(6'/,'(01*' (" '-0.'/0.'/,'A//1'3.&!4*1'A!.2'=*(F 6!;!/4'A!.2'&'-;0<'&41'3!-D;*'&41'&'72&;;!-' 356</;'/,'.2*'-(*&.!=*' &41',(0-.!,5!4>' 7/A*(3'/,'4&.0(*' 2*'3&-(!,!-*3'/,!*(*1' ./'2!6'!4-;01*1'&33*3'&3'A*;;' &3'.2*',!(3.'' ,(0!.3'/,'.2*'>&(1*4'&41'.2*',!*;1

(!*3.3' 8$9' 6' 2*'6!4!3.*(3'/,'& 7&(.!-0;&('3&4-.0&(5'-2&(>*1'A!.2'.2*'10.5' B/,'&..*41!4>'./'.2*'3*!"=!-*'/,'.2*'>/1'/,'.2*' 7;&-*' 2*!('10.5'A&3'./',,*('&77(/7(!&.*' 3&-(!,!-*3'&41'7*(,/(6'.2*('2/;5',,!-*3'&.' .2*'&77/!4.*1'.!6*'&41'6&44*('&41'&;3/'./' &33!3.'&41'!43.(0-.'A/(32!77*(3'&3'./'.2*' (!.*3'.2*5'A*(*'./'/<3*(=*'2*5'2&1'./' 3;&5'.2*=!-.!6'./'3*;*-.'.2*'7&(.3',/('/,,*(F !4>'&41'./';&5'.2*6'/4'.2*'&;.&('./'0..*(' .2*&--/67&45!4>'7(&5*(3'&41'.2*';!D*'4' 3&-(*1',04-.!/43'A2!-2'A*(*'7*(,/(6*1' *;3*A2*(*'8&3'<5'.2*',&.2*('&.'.2*',&6!;5' &;.&('&41'<5'-*(.&!4'.&.*'/,,!-*(3'1' <5'.2*',!(3.'.2(**'&(-2/43'&.'.2*43'<5'.2*' D!4>3'&.'7&(.&9'.2*!('&33!3.&4-*'A&3'4/.' (*:0!(*1'&;.2/0>2'!.'A&3'/,.*4'!4=!.*1 2*'>*4*(&;'4&6*'(*(7(*3*4.3'.2*' 7(!*3.'!4'2!3'-2&(&-.*('/,'&4'/,,*(*('/'3&-(!F ,!-*'&41'&'6!4!3.*('/,'3&-(*1'(!.*3'4'.2*' G1!,,*(*4.'-0;.3'2/A*=*('.2*'7(!*3.3'/,.*4' .//D'.2*'6/3.'=&(!/03'4&6*3'&41'A!.2' (*,*(*4-*'./'!41!=!10&;'-0;.3'2&1'7*-0;!&(' ,04-.!/43'2*'7(!*3.2//13'A*(*',!;;*1' 7&(.;5'<5'(!>2.'/,'!42*(!.&4-*',(/6'A!.2!4' -*(.&!4',&6!;!*3'8&3'3 6*'/,'.2*6'A*(*'!4' "&;6/3.'&!;' (**D'3.&.*3*'<0.'*37*-!&;;5'&.' .2*439*'7&(.;5'<5'*;*-.!/4'/('<5'&'D!41'/,' &77/!4.6*4.'-/6<!4!4>'*;*-.!/4'&41';/.' >*4*(&;':0&;!,!-&.!/4'A&3';*>!.!6&.*'1*3-*4.' ,(/6'-!.!Q*43'&4'!((*7(/&-2&<;*'-2&(&-.*('&41',(**1/6',(/6'</1!;5'1*,*-.3'8 2*'A/(F 32!7'/,'(.6!3'&.'72*303'(*:0!(*1'.2* 7(!*3.3'./'<*'*040-23'<0.'!.'!3'./'<*'/<3*(=*1' .2&.'.2!3'A&3'4/.'&' (**D'A/(32!7'9' &45' 7(!*3.2//13'A*(*'/4;5',!;;*1'<5'6*4'/.2*(3' <5'A/6*4'/4;5'!4'6&45'.*67;*3'.2*(*'A*(*' 7(!*3.3'&41'7(!*3.*33*3'./>*.2*('<0.'07/4 .2*'A2/;*'!.'A&3'&'(0;*'.2/0>2'4/.'A!.2/0.' *0-*7.!/43'.2&.'.2*'7(!*3.3'/,'>/13'A*(* 6*4'/,'>/11*33*3'A/6*4'4'(*>&(1'./' .2*'4*-*33&(5'&>*'&>&!4'.2*'(*>0;&.!/43' A*(*'=*(5'=&(!/03'6&45'7(!*3.2//13'-/0;1' /4;5'<*',!;;*1'<B':0!.*'5/04>'7*(3/43' !(>!4!.5'&41'-*;!<&-5'A*(*'(*:0!(*1',/(' -*(.&!4'7(!*3.2//13'1',/(' .2/3*'/,'.2*' =!(>!4'>/11*33*3'.2*4*'&41'(.*6!3' (0;*'*0!3.*1'!4'6&45'7;&-*3'.2&.'&'A/6&4' 6/(*'.2&4'/4-*'6&((!*1'A&3'1!3:0&;!,!*1',/(' .2*'7(!*3.2//1'.'&45'(&.*'(!.0&;' 7(*3-(!<*1'-2&3.!.5',/('&-*(.&!4'.!6*'<*,/(*' 041*(.&D!4>'&45'7(!*3.;5'10.5'*(*'&41' .2*(*'.//'.2*'7(!*3.3'A*(*',/0<!11*4'./' .&3.*'-*(.&!4'D613'/,',/1'2*'/,,!-*' A&3'2*;1',/('=*(5'=&(!/03'7*(!/13'/4*'5*&('3*=*(&;'5*&(3'&';!,*".!6*'2*'7(!*3.3' >*4*(&;;5'A/(*';/4>'2&!('&41'A2!.*'=*3.F 6*4.3'6&45'/,'.2*6'A*(*'-;/.2*1'!4' 3&,,(/4"-/;/0(*1'(/<*3'&3'8&6/4>'/.2*(39' .2*'7(!*3.3'/,'!/45303'2*'7(!*3.;5' /(4&6*4.3'!4-;01*1'>&(;&413',(/6'.2*' ;*&=*3'/,'=&(!/03'.(**3'&;A&53'&-/(1!4>' ./'.2*'-2&(&-.*('/,'.2*'>/1'&41'A(*&.23' /('!;;*.3'/,'6&45'D!413'2*'7(!*3.;5'3.&,,' !3'/,.*4'6*4.!/4*1'2*'7(!*3.3'/,.*4'2&1' &4'/,,!-!&;' (*3!1*4-*'A!.2!4'.2*'.*67;*' !4-;<30(*

2*5'1*(!=*1'.2*!('6&!4.*4&4-*'7&(.;5' ,(/6'.2*'(*=*40*'/,'.2*'.*67;*'7(/7*(.5' 7&(.;5',(/6'.2*!('32&(*'/,'.2*'3&-(!,!-*3' .2*'3D!43'/,'.2*'&4!6&;3'3&-(!,!-*1'&41' /.2*('10*3'/,'.2*'3&6*D!41'&41'3/6*.!6*3' ,(/6'&-.0&;'/,,*(./(!*3'6/4>'.2*!('7(!=!F ;*>*3'<*3!1*3'.2*!('!4=!/;&<!;!.5'A*(*',(**F 1/6',(/6'6!;!.&(5'3*(=!-*'&41'&'3*&.'/, 2/4/0('&.'&33*6<;!*3'/,'.2*'7*/7;*'&41'&.' .2*'.2*&.(*'4'6&45'7;&-*3'1&.*3'A*(*' (*-D/4*1',(/6'.2*'.!6*'A2*4'.2*'7(!*3.'/,' .2*'-2!*,'1!=!4!.5'*4.*(*1'/4'/,,!-*'*5'!4' (>/3',(/6'.2*'7(!*3.*33'/,'*(&3',!(3.' 5*&('/,'6!4!3.(5'f 20-51!1*3'!!'@'$g' *3!1*3'.2*'7(!*3.3'.2*(*'A*(*'6&45'D!413' /,'.*67;*"3*(=&4.3',/('.2*'7(*3*(=&.!/4'/,' .2*'3&-(*1'<0!;1!4>3'.2*'&16!4!3.(&.!/4'/,' .2*!('(*=*40*3'&41'.2*'7*(,/(6&4-*'/,'.2*' &(!/03'(!.*3'W$'"'*#'/')' /'(' 8@9'7"'.'/(4*'.2*'.&.*'(*;!>!/4' A&3'041*('.2*'6&4&>*6*4.'/,'&'406<*(' /,'7(!*3.2//13'A2!-2'<5'.2*'/(1*('/,'.2*' .&.*'7*(,/(6*1'.2*'(*>0;&(;5'7(*3-(!<*1' 3&-(*1'(!.*3'/('.2/3*'37*-!&;;5'1*-(**1'<5' .2*'.&.*'/4'.2*!('(*-/66*41&.!/4'4'.2*' .!6*'/,'.2*'D!4>3'.2*'307*(!4.*41*4-*'/,' .2*'*4.!(*'(!.0&;'<*;/4>*1'./'.2*'D!4>3' &6/4>'A2/6'.!6&'&3'.2*',/041*('/,'&4' /(>&4!Q*1'A/(32!7'/,'.2*'>/13'2/;13'&

7(/6!4*4.' 7;&-*' 2*' 6/3.' !67/(.&4.' 7(!*3.2//13' GA2!-2' /(!>!4&.*1' !4' .2*' .!6*' /,' .2*' D!4>3' A*(*' .2*' A < " ' .2*' 1 ' .2*' = ' .2*' = ' .2*' A ' .2*' , h ' .2*' ; ' .2*' A ' &41' .2*' $@ " ' *F 3!1*3' .2*3*' !4' -/0(3*' /,' .!6*' .2*(*' &(/3*' .2*' -' V ' ./' /,,*(' -*(.&!4' 3&-(!F ,!-*3' /(!>!4&;;5' /,,*(*1' <5' .2*' D!4>' .2*' -03./1!&43' /,' .2*' !<5;;!4*' /(&-;*3' .2*' 9 " ' ./' 1!3-2&(>*' &' 7&(.' /,' .2*' 7/4F .!,!-&;' 10.!*3' .2*' 7(!*3.3' /,' .2*' 4*A' -0;.3' >(&10&;;5' !4.(/10-*1' &41' ;&3.;5' .2*' 7(!*3.3' /,' .2*' 1*!,!*1' *67*(/(3' 1' .2*' ' 1 ' '406<*(' /,' .&.*' -0;.3' A*(*' 2&41*1' /=*(' ./' !41!=!10&;' -;&43' &1 " ' &41' &33/-!&.!/43' & ' $,.*(' .2*' *3.&<;!32 6*4.' /,' .2*' *70<;!-' &' 1!3.!4>0!32*1' 7/3!.!/4' A&3' &..&!4*1' <5' .2*' -/;;*>*' /,' .2*' " Q ' A2/' ;!D*' .2*' D!4>' !4' *&(;!*(' .!6*3' 307*(!4.*41*1' .2*' *4.!(*' (!.0&;' 2*5' A*(*' .2*' .*-24!-&;' &1=!3*(3' /,' .2*' *4&.*' /4' &45'4*A' :0*3.!/43' .2&.' &(/3*' !4' (*>&(1' ./' !.' *0.' ./' .2*6' !4' !67/(.&4-*' A*(*' .2*' &0>0(3' &41' .2*' -03./1!&43' /,' .2*' !<5;;!4*' /(&-;*3' 2*3*' 7(!*3.2//13' ./>*.2*(' A!.2' .2&.' /,' .2*' " ' A*(*' 3.5;*1' .2*' ,/0(' >(*&.' -/;;*>*3' & ' ' - 1 ' &41' &4' *:0&;' 2/4/0(' A&3' &,.*(A&(13' >!=*4' ./' .2&.' /,' .2*' ' 1 2*' &77/!4.6*4./,' .2*' 7(!*3.3',/(' A2/6' .2*' 3&6*' :0&;!,!-&.!/43' A*(*' (*:0!(*1' &3' &6/4>' .2*' (**D3' 7(/-**1*1' !4' =&(!/03' A&53' <5' 4/6!4&.!/4' -/"/7.&.!/4' &41' *;*-.!/4' 2*5' *4.*(*1' /4' /,,!-*' <5' !4F &0>0(&.!/4' &4' &-.' !4' A2!-2' .2*' -2!*,' 7/4.!,,' &-.!4>' .2(/0>2' .2*' &0>0(3' !4F :0!(*1' /,' .2*' >/1' -/4-*(4*1' A2*.2*(' .2*' 4*A' 7(!*3.' A&3' &--*7.&<;*' ./' 2!6' !3' (*-*7.!/4' !4./' .2*' -/;;*>*' A&3' &--/6 7&4!*1' <5' &' <&4:0*.' >!=*4' <5' .2*' 4*A' 7(!*3.' A2!-2' <*-&6*' 7(/=*(<!&;' ,/(' !.3' ;000(5 2*4' /,,!-!&;;5' *4>&>*1' &;' .&.*' 7(!*3.3' 8&7&(.' ,(/6' .2*!(' 7*-0;!&(' " 1" ' A/(*' (- ' .2*' 70(7;*"*1>*1'(/<*'/,' /6&4' 6&>!3.(&.*3' 2*5'&;3/'*4K/5*1' .2*' 1!3.!4-F .!/4' /,' &' 3*&.' /,' 2/4/0(' &.' ,*3.!=&;3' &41' >&6*3' &41'*0*67.!/4',(/6' 6!;!.&(5'3*(=!-*' ,(/6' .2*' 10.!*3' /,' -!.!Q*43' &41' ,(/6' .&0&F .!/4' 2*' >(*&.' 7(!*3.2//13' A*(*' 7/3.3' /,' 6/0(' &41' ;!D*' .2*' 7/;!.!-&;' /,,!-*3' A*(*' !.2/0.' (*604*(&.!/4' 4' .2*' /.2*(' 2&41' 6*' 7(!*3.3' &41' 7(!*3.*33*3' & 1' .2*' *3.&;' !(>!43' &41' .2*' &0>!((39' <*3!1*3' .2*' ;*' /,' .2*' 3&-(*1'/(' 70<;!-';&413' <*;/4>!4>' .2*!(' .*67;*3' (*-*!=*1' &' (*>0;&(' &440&;' ;&(5' 2*' -/3./,' .2*' *3.&<;!32 6*4.' A&3' ,(&5*1',(/6' 3*=*(&;' 3/0(-*3' 2*' 7(!*3.3 2&1' 041*(' .2*!(' 6&4&>*6*4.' &' ,041' A2!-2' A&3' 6&!4.&!4*1' ,(/6' ;&41*1' 7(/7*(.5' &41' -0((*4.'(*-*!7.3' 8!4-;01!4>' ,**3' ,/(' &16!3F 3!/4' ./' .2*' .*67;*' &41' ,/(' .2*' /,,*(!4>' /,' .2*' 3&-(!,!-*9' 2*5'&;3/' 2&1' &' -;&!6' ./' -*(F .&!4' 7&(.3' /,' .2*' =!-.!6' &41' /.2*(' 7*(:0!F 3!.*3'' <*3!1*3' .2!3' .2*5' &;;' *37*-!&;;5' .2*' " ' & ' ") ' &41' .2/3*' &33/-!&F .!/43' ./' A2!-2' .&.*' -0;.3' A*(*' *4.(03.*1' (*-*!=*1' .2*4*-*33&(5'6/4*5',(/6' .2*'70<;!-' -2*3.' 2*' -/3./,' (*7&!(!4>' .2*' .*67;*3' &41' /,' &;;' 3&-(!,!-*3' &41',*3.!=&;3' *37*-!&;;5' /(1*(*1' <5' .2*' .&.*' A&3' 1*,(&5*1',(/6' .2*' 3&6*' 3/0(-*' !6!;&(;5' .2*' .&.*' 7(/F =!1*1' .2*' 7(!*3.3' *!.2*(' A!.2' 70<;!-' 3;&=*3' /(' A!.2',(*' &41' 3&;&(!*1' 3*(=&4.3' ./' A&!.' 07/4' .2*6' 8 /(' &' 7&(.!-0;&(' D!41' /,' 7(!*3.3' &33!3.&4.3' " & ' ;;' .&.*' .*67;*3' 1!1' 4/.' 2&=*' 7&(.!-0;&(' 7(!*3.3' &33!>4*1' .2*6' .*67;*3' A!.2/0.' 7(!*3.3' /,' .2*!(' /A4' A*(*' 041*(' .2*' 307*(!4.*41*4-*' /,' &' 3&-(!3.&4' &' ' &41' !.' A&3' 030&;;5' /4;5' /4-*' !4' .2*' 5*&(' .2&.' 3&-(!,!-*' A&3' /,,*(*1' &.' .2*' >(*&.' ,*3.!=&;' /,' 30-2' .*67;*3' <5' &' .&.*' 7(!*3.' 37*-!&;;5' &77/!4.*1' ,/(' .2*' 70(7/3*' /' 7(!*3.' -/0;1' <*' -&;;*1' ./' &--/04.' <5' &45' -!=!;' 6&>!3.(&.*' *0-*7.' .2*' -*43/(' 2*' " -' -3 ' 2&1' .2*' 7/A*(' /,' 704!32!4>' .2*' /.2*(' 7(!*3.3' 2*' 7/3!.!/4' /,' &' 7(!*3.' /,' &' -0;.' 4/.' (*-/>F 4!3*1' <5' .2*' .&.*' <0.' 6*(*;5' ./;*(&.*1' A&3' 4&.0(&;;5' 1!,,*(*4.' !.2' (*>&(1' ./' .2*!(' 6&!4.*4&4-*' .2*5' A*(*' .2*63*;=*3' ;!D*' .2*' 3&4-.0&(!*3' .2*5' 307*(!4.*41*1' 307F 7/(.*1' <5' .2*' -/4.(!<0.!/43' /,' .2*' =/.&(!*3' /,' .2*!(' /A4' -0;.

(!6!7!;03' ' ")

(!4-*73' 2*' &.!4' A/(1',/('H&'-2!*,' H' &' ;*&1*(I' H' .2*' ,/(*6/3.' 7*(3/4 I' 203' !4' .2*' /6&4'-/43.!.0.!/4 B(K!-*KT V4X .,;3' !3' .2*' 3*4&./(' A2/' A&3' 7;&-*1' ,!(3.'/4' .2*' (/;;' /,' .2*' *4&.*' A&3'=/.!4>' !,' 4/' -/430;3'' 1*3!>4&.*' A*(*' 7(*3*4.' 2*' A&3' &3D*1' ,/(' 2!3' /7!4!/4' <5' .2*' 7(*3!1!4>' 6&>!3.(&.*' <*,/(*' &45' /4*' *;3*' 03.' &3' 041*(' .2*' *70<;!-' .2*' ;*&1!4>' 6*4' !4' .2*' .&.*' GA*(*-&;;*1' " Q ' 0>03.03' .2*' ,/041*(' /,' .2*' /4&(-25' .//D' A!.2' >*4*(&;' -/43*4.' .2*' .!.;*' /,' " ' 2!3' A&3' :0!.*' !4' 2&(6/45' A!.2' .2*' /;1' -/43.!.0.!/4' &41' &.' .2*' 3&6*' .!6*' (*-/>4!3*1' 2!3' *:0&;!.5' A!.2' .2*' /.2*(' -!.!Q*43' /(' .2*' 3&6*' (*&3/4' 2!3' 30--*33/(' !<*(!03' 3*.' 37*-!&;' 3./(*' /4' .2*' .!.;*' /,' " ' 3' .2*' 6/4&(-2!-&;' 7/A*(' <*-&6*' -/43/;!1&.*1' &41' .2*' /;1' (*70<;!-&4' !1*&3' 1!3&77*&(*1' .2*' -/43-!/034*33' /,' .2*' /(!>!4&;' 6*&4!4>' /,' .2*' .!.;*' 1!3&77*&(*1' A!.2' .2*6' , " '-&6*' ./' <*' *:0!=&"

;*4.' ./' *' <0.' !.' 4*=*(' <*-&6*' G&4 /,,!-!&;' .!.;*' ;!D*' ' ' $ ' 1 ' !D*' .2*' *4&.*' .2*' D4!>2.3' 2&1' &' " ' .2*' " ' " ' 8.2*' 5/0.29' 2!3' .!.;*' A&3' </(4*' <5' .2*' D4!>2.' A2/3*' 4&6*' &77*&(*1' ,!(3.' !4' .2*' -*43/(3' ;!3.' /,' .2&.' </15' 5' A&5' /,' -/67;!6*4.' ./' .2*' D4!>2.3' 0>03.03' -&03*1' 2!3' >(&413/43' (&!43' &41' 0-!03' G &*3&(' ./' <*' 3.5;*1' " ' " ' =*(' &,.*(' .2*' *67*(/(3' 5/0.2,0;' 3/43' A*(*' (*>0;&(;5' *4.!.;*1' " ' "R ' 04.!;' .2*!(' *4.(&4-*' 4' &' 6&>!3.(&-5' .' .2*' .!6*' /,' /6*3'-/67;*.*' 1*-&5' .2!3' ".!.;*' A&3' 4/.' 04,(*:0*4.;5' </(4*' <5' .2/3*' &33/-!&.*1' A!.2' .2*' *67*(/(3'!4' .2*' >/=*(4F 6*4.' 4' .2*' 6*&4!4>' /,' " ' !4' 6!;!.&(5';&4>0&>*' ' (!3-!&4' #, " ' 8$9' ' &.!4' >(&66&(!&4'/,' 3*3,.(*' !4' &0(!.&4!&' A2/' ;!=*1' &.' .2*' <*>!44!4>' /,' .2*' ?.2' -*4.0(5' ' &3' &' .*&-2*(' /,' .2*' &.!4' ;&4>0&>*' !4' /43.&4.!4/7;*' *' .2*(*' -/67!;*1' !4' &11!.!/4' ./' &' 406<*(' /,' 36&;;*(' >(&66&F .!-&;' /(D3' 2!3' '" " ' 6 ' !4' $R' </!D3' .2*' ,0;;*3.' &41' -/67;*.*3.' 353.*6&.!-' &.!4'>(&66&(' A2!-2' 2&3' -/6*' G1/A4' ./' 03' 2!3' A/(D' 2!-2' !3' /,' >(*&.' !67/(.&4-*' /A!4>' ./' !.3' &67;*' :0/.&.!/43' ,(/6' &4-!*4.' ;!.*(&.0(*' A&3' ,/(' &' ;/4>' .!6*' !4' .2*' !11;*' >*3' .2*' 3-2//;' </!D' !4' /(1!4&(5' 03*' &41' ,/(6*1' .2*' ,/041&.!/4' ,/(' .2*' *&(;!*(' .(*&.!3*3' /4' &.!4' (&66&(' !4' 6/1*(4' .!6*3' *' &;3/' 7/33*33' &4' !4F 3!7!1' 7&4*>5(!-&;' 7/*6' A(!..*4' <5' (!3-!&4' /4' .2*' *67*(/(' 4&3.,.3!0' &41' &' .(&43;&F .!/4' /,' .2*' /36/>(&725' /,' .2*' >*/>(&72*(' ! 453!03' !4' 2*0&6*.*(' =*(3* 8@9' ' 7253!-!&4' A2/' ;!=*1' !4' .2*' V.2' G-*4.0(5' 4&6*1' + ' , " ' 2&3' ;*,.' 03' &' " ' , " <" ' 8&' </!D' / ,'(&7!1' -0(&.!=*39' !4',!=*' </!D3 (V<?;*' &6 ' 6/.!/4',/(' &'K01!-!&;' 7(/3*-0.!/4' 4' ..!-';*>&;' 7(/-*10(*'!.' A&3' &' 7&(.!-0;&(' D!41'/,' 70<;!-' !41!-.6*4.' 4' .2*' ,!(3.' &33*6<;5' /,' *=*(5' 7(5.&45' /4' .2*' &(-2/43' !4:0!(!4>' A2*.2*(' .2*' 7*/7;*' A*(*' 3&.!3,!*1' A!.2' .2*' -/410-.' /,' .2*' 6&>!3F .(&.*3' &45' -!.!Q*4' 6!>2.' &--03*' & 6&>!3.(&.*' /,' /,,!-!&;' 6!3-/410-.' ,' .2*' &33*6<;5' -/43!1*(*1' .2*(*' A&3' ,/041&.!/4' ,/(' .2*' -2&(>*' .2*' 6&>!3.(&.*' A&3' .*6F 7/(&(!;5' 3037*41*1' /(' *=*4' &<3/;0.*;5' G1*7/3*1' ,(/6' 2!3' /,,!-*' &41' &' K01!-!&;' 7(/3*-0.!/4' A&3' !43.!.0.*1' =*4' &>&!43.' &' 7(!=&.*'-!.!Q*4' *37*-!&;;5' ,/(' 1/!4>' &4' !4K0(5' ./' 6&>!3.(&.*3' /(' ./' &-(*1' 7*(3/43' %/(' .2!4>3' ,/(' !4.*((07.!4>' &' ,*3.!=&;' *6" 2*QQ;K4>' 70<;!-' 6/4*5' /(' !43.!.0.!4>' & =*0&.!/03' 7(/3*-0.!/4' &' -/67;&!4.' -/0;1' <*' <(/0>2.' <*,/(*' .2*' 7*/7;*' !4' /(1*(' ./' 3**' A2*.2*(' .2*5' -/43!1*(*1' .2*' -&3*' 30!.F &<;*' ,/(' &K01!-!&;' .(!&;' f 2*' 6/3.' -*;*F <(&.*1' *0&67;*' /,' .2!3' 7(/-*10(*' !3' .2*' -&3*' /,' *6/3.2*4*3' &>&!43.' *!1!&3' ,/(' &33&0;.!4>' 2!6'!4' .2*' 1!3-2&!B' /,' 70<;!-' ,04-.!/43' &.' .2*' 5 "8E D[/A*=*(' .2!3' 4*!.2*(' </041' .2*' 6&4' A2/' ;&!1' .2*' 7;&!4.' ./' <(!4>',/(A&(1' &4' &-.0&;' !41!-.6*4.' 4/(' .2*' K0(5' ./' ,/;;/A' !4' .2*' ,/(6&;' .(!&;' .2*' 7(*;!6!4&(5' =*(1!-.' /,' .2*' 7*/7;*' &;.2/0>2' !.' A/0;1' &;A&53' !4,;0*4-*' .2*6 (1<43' & ' = ' ' ,&6/03' /6&4'3-2/;&(' &41' -(!.!-' </(4' &.' *(5.03' !4' 5(!&' *',;/0(!32*1' !4' .2*' 3*-/41' 2&;' /,' .2*' $3.' -*4.0(5' ' *' 1*=/.*1' &;6/3.' &;' &..*4.!/4' ./' .2*' &(-2&!-' &41' -;&33!-&;' ;!.*(&.0(*' /,' /6*' A2!-2' 2&1' <**4' 7(*F =!/03;5' 4*>;*-.*1' &41' ./' .2*' -(!.!-&;' (*F =!3!/4' /,' .2*' 6/3.' !67/(.&4.' /6&4'7/*.3' &3' 0-(*.!03' *(>!;' &41' /(&-*' &,.*(' .!* 6&44*(' /,' .2*' ;*0&41(!4*' 3-2/;&(3' /6* /,' 2!3' -(!.!-!363' /4' *(>!;' 6&5' 7/33!<;5' <* 7(*3*(=*1' ./' 03' !4' &' -/66*4.&(5' ./' .2* 9 1 ' &41' 6 1 ' A2!-2' <*&(3' 2!3' 4&6*' (/6' &' -/66*4.&(5' /(' -(!.!-!36' /4' *(3!03' A*' 2&=*' 2!3' <!/>(&725' /,' .2&.' 7/*.' &41',(/6' 2!&' A/(D' 5' > ' A*' 2&=*' &4'*0.(&-.'-/4.&!4!4>' .2*' &<<(*=!&.!/43' 03*1' ,/(' ;*>&;' .*(63' .2*(' >(&66&.!-&;' A(!.F !4>3' <*&(!4>' 2!3' 4&6*' &(*' .2*' A/(D' /,' &' >(&66&(!&4' /,' .2*' C.2' -*4.0(5 (-;03' 2*' 6/3.' !67/(.&4.' (*7(*3*4F .&.!=*' /,' .2*' ;&.*(' */" ;&./4!-' 3-2//;' </(4' C$@' ' &.' 5Q&4.!06' *' (*-*!=*1' 2!3' ,!(3.' !43.(0-.!/4' &.']&4.203' !4' 5*!&' &41' <*.//D' 2!63*:;' ./' ;*0&41(!&' ./' -/67;*.*' 2!3' *10-&.!/4' 2*(*' 2*' &..&-2*1' 2!63*:;' -2!*;5' ./' `(4' .2*' 6&.2*6&.!-!&4' &41' ./' .2*' (!3./.*;!&4' ;567!/1/(03' *,/(*' .2*' &>*' /,' .A*4.5' 2*' !"*!4/=*1' ./' .2*43' ./' &..*41' .2*' ;*-.0(*3' /,' .2*' 6/3.' -*;*<(&.*1' ;&./4!3.3' /,' .2*' .!6*' 5(!&403' &41' ;0"' .&(-203' 4' .2*' 1*&.2' /,' .2*' ;&..*(' 2*' <*-&6*' 2*&1' /,' .2*' ;&./4!-' 3-2//;' 04.!;' 2!3' /A4' 1*&.2' !4' CRV' !3' 1!3-!7;*3' A*(*' =*(5'406*(/03' &41' 2!3' ;*&(4!4>' &41' Q*&;' ,/(' .2*' *10-&.!/4' /,' .2*' 5/!6>' -/6<!4*1' A!.2' 2!3' <*4*,!-*4-*' 2!3' =!(.0/03' &41' 3.(!-.;5' &3-*.!-';!,*' &41' 2!3' 3.*&1,B.4*33' !4' .2*' ,&!.2' /,' 2!3' ,&.2*(3' >&!4*1' 2!6' .2*' *4.203!&3.!-'1*=/.!/4' /,' 2!3',/;;/A*(3' *' 7/33*33' &4' &--/04.' /,' 2!3' ;!,*',0;;' /,' &16!(&F .!/4' ,/(' 2!3' -2&(&-.*(' <5' 2!3' 707!;' &41' 30--*33/(' J(!403' 2*' *,,/(.3' /,' (/-;03' A*(*' 1!(*-.*1' ./' .2*' 3077/(.' /,' 7&>&4!36' !4' !.3' 3.(0>>;*' A!.2' .2*' 4/A' =!-./(!/03' 2(!3.!&4!.5' <5' (*10-!4>' ./' & 353.*6' &;;

.2*' 72!;/3/72!-' &41' (*;!>!/03' .(&1!.!/43' /,' &4.!:0!.5' !3' ;!.*(&(5' &-.!=!.5' A&3' =*(5' >(*&.' &41' *0.*41*1' /=*(' &;6/3.' *=*(5' 1*F 7&(.6*4.' /,' D4/A;*1>*" <0.' ;&./4!-' 72!;/F 3/725' A&3' .2*' -*4.(*' /,' .2*' A2/;*' !3' 72!;/3/72!-&;' A/(D3' 4/A' *0.&4.' &(*' &' -/66*4.&(5' /4' &' ,*A' 1!&;/>0*3' /,' ;&./' 86&!4;5' /4' .2*' +d" % &;3/' 2!3' -2!*,' A/(D' /4' .2*' .2*/;/>5' /,' ;&./' &3' A*;;'%&3' &' 3066&(5'/,' .2*' .2*/;/>5' /,' ;/.!403' A!.2' A(!.!4>3' .(*&.!4>' 3*=*(&;' <(&4-2*3' /,' 72!;/" 3/725' ,(/6' 2!3' /A4' 7/!4.' /,' =!*A' /6*' /,' 2!3' 6!4/(' A/(D3' 2&=*' /4;5' (*&-2*1' 03' !4' &' &.!4' .(&43;&.!/4' 3' 37*-!6*43' /,' 2!3' 66&.2*6&.!-&;' &41' &3.(/4/6!-&;' A/(D3' A*' 2&=*' &' -/66*4.&(5' /4' .2*' ,!(3.' </!D' /,' 0-;!1' &' 3D*.-2' /,' .2*' &3.(/4/6!-&;' .*&-2F !4>' /,' !77&(-203' ./;*65*' &41' /.2*(3' &' 3;!>2.' .(*&.!3*' /4' .2*' 2*&=*43' *.-' 4*' /,' 2!3' >(&66&.!-&;' A(!.!4>3' 30(=!=*3' !4' 2!3' -/66*4.&(5' /4' *3!/13' M " 5 : ' &3.;5' A*' 2&=*' .A/' *7!>(&63' <5' 2!6' &41' 3!0' 25643' .' !3' 1/0<.,0;' A2*.2*(' .2*' 6 $((:' *0.(&-.3',(/6' A2!-2' 7(*3*(=*1' <5' 2/.!03' &(*' .2*' /4;5' 3/0(-*' /,' /0(' D4/A;*1>*' /,' .2*' (**D' -5-;!-' 7/*.3' A&3' (*&;;5' A(!..*4' <5' 2!6' &41' 4/.' (&.2*(' <5' &' >(&66&(!&4' /,' .2*' 3&6*' 4&6*' !4' .2*' @41' -*4.0(5'

(/-4*' ' 1&0>2.*(' /,' .2*' .2*4!&4' D!4>' &41!/4' &41' L*00!77*' 3!3.*(' /,' 2!;<6*;&' 2*' A&3' >!=*4 !4' 6&((!&>*' <5' 2*(',&.2*(' ./' .2*' 2(&-!&4' 7(!4-*' >(*03' !4' &0;;3' 4*&(' &(4&3303' !4' (*.0(4',/(' &33!3F .&4-*' >!=*4' 2!6' !4' A&(' *(*03' <*-&6*' <5' 2*(' .2*' ,&.2*(' /,' .'B3' (*.*41!4>' .2&.' 2!3' A!,*' (/-4*' A&3' 1*&1' *(*03' ,*.-2*1' 2*(' 3!3.*(' 2!;/6*;&',(/6' .2*43' &41' (&=!32*1' 2*(' /4' .2*' A&5' *' .2*4' -0.' /0.' 2*(' ./4>0*' .2&.' 32*' 6!>2.' <*' 04&<;*' ./' !4,/(6' &>&!43.' 2!6' &41' -/4-*&;*1' 2*(' !4' &' >(/=*' /4' &(4&3303*" <0.' .2*' 04,/(.04&.*' >!(;' -/4F .(!=*1' ./' !4,/(6' 2*(' 3!3.*(' /,' A2&.' 2&1' 2&77*4*1' <5' &' (/<*' !4./' A2!-2' 32*' !4F >*4!/03;5' A/=*' .2*' 3./(5' /,' 2*(' ,&.*' &D!4>' .2*' /77/(.04!.5' /,' &' ,*&3.' /,' !/45303' !4' &(4&3303' (/-4*' A*4.' !4' :0*3.' /,' 2*(' 3!3.*(' &41' &>(**1' A!.2' 2*(' /4' &' <;//15' (*=*4>*' 2*5' 3;*A' .2*' </5' .53' &41' 3*(=*1' ^!6' 07' ./' 2!3',&.2*(' ./' *&.' 2*4' *(*03';*&(4.' .2*' /0.(&>*' &41' A&3' /4' .2*' 7/!4.' /,' 3;&5!4>' .2*' 3!3.*(3' .2*' >/13' -2&4>*1' 2!6' !4./' &' 2//7/*' /(' 2&AD' (/-4*' !4./' &' 4!>2.!4>&;*' &41' 2!;/6*;&' !4./' &' 3A&;;/A' /(' 8&--/(1!4>' ./' &4/.2*(' =*(3!/4' (/-4*' !4./' &' 3A&;;/A' &41' 2!;/F 6*;&' !4./' &' 4!>2.!4>&;*' & ' (/-/430;' &O ' " ' H 1*70.5" -/430;' I' 2*' 4&6*' &.' /6*' ,/(' .2* /,,!-*(' ./' A2/6' .2*' -/430;&(' 7/A*(' A&3' *4.(03.*1',/(' &' 37*-!,!*1' 1!3.(!-.' /0.3!1*' .2*' -!.5' 2*' (*>0;&(' 6*.2/1' /,' &77/!4.!4>' .2*' 7(/-/430;' A&3' ./' 7(/;/4>' .2*' /,,!-!&;' 7/A*(' /,' .2*' (*.!(!4>' -/430;' & 1 ' /4' .2*' -/4-;03!/4' /,' 2!3' 5*&(' /,' /,,!-*' 4*0-*7.!/4&;' -&3*3'2/A*=*(' /.2*(3' A*(*' &77/!4.*1' 7(/-/430;3' B4*(&;;5' .2/3*' 2/' 2&1' &;(*&15'2*;1' .2*' /,,!-*' /,' -/430;' 2!3' A&3' *37*-!&;;5' 1/4*' ./' !4-(*&3*' .2*' 406<*(' /,' >*4*(&;3' !4' -/66&41' 2*' 7(/" -/430;3' A*(*' &77/!4.*1',/(' &' 1*,!4!.*' /(' !41*,!4!.*' 7*(!/1" &3' &(0;*' ,/(' &' 5*&(' (*-D/4*1',(/6' .2*' 1&5' /4' A2!-2' .2*5' *4F .*(*1' .2*!(' 7(/=!4-*' 2!3' 7*(!/1' 6!>2.' <*' ¢7(/;/4>*1' <5' &' 4*A' 7(/(/>&.!/4' 4' &45' -&3*' .2*' 7(/-/430;' -/4.!40*1' !4' /,,!-*' .!;;' .2*' &77*&(&4-*' /,' 2!3' 30--*33/(' !.2' .2*' >(/A.2' /,' .2*' 7(/=!4-*3' .2*' -/430;3' &3' A*;;' &3' .2*' 7(&*./(3' A*(*' *67;/5*1' ./' &1F 6!4!3.*(' .2*6' &3' 7(/-/430;3' /4' .2*' *07!(5' /,' .2*!(' /,,!-*' ,.*(' 0;;&' .2!3' <*-&6*' .2*' (0;*" !41**1' .2*' *4&.*' 1*-!1*1' A2!-2' 7(/=!4-*3' A*(*' ./' -/430;&(' &41' A2!-2' 7(&*.!/(!&4' 2*' (*>0;&.!/4' !4' ?' ' .2&.' 7&3.' -/430;3' 32/0;1' 4/.' >/=*(4' &' 7(/=!4-*' .!;',!=*' 5*&(3' &,.*(' .2*!(' -/430;32!7' <(/D*' 1/A4' .2*' !66*1!&.*' -/44*0!/4' <*.A**4' .2*' -/430;32!7' &41' 30--*33!/4' ./' &' 7(/=!4-*' &41' .2*' 7(/-/430;3' .2*(*<5' <*-&6*' !4' 4' 6/(*' 1!3.!4-.!=*' 3*43*' >/=*(4/(3' /,' 7(/=!4-*3' ,.*(' 0>03.03' .2*' .!.;*' A&3' >!=*4' ./' >/=*(4/(3' /,' 3*4&./(!&;' 7(/=!4-*3' A2*.2*(' .2*5' 2&1' 2*;1' .2*' /430;32!7' <*,/(*' /(' 4/.' 3' 3//4' &3' .2*' 7(/-/430;' 2&1' <**4' !4=*3.*1' A!.2' 2!3' /,,!-!&;' 7/A*(' & ' 2*' 2&1' ./';*&=*' /6*' ,/(.2A!.2',/(' .2*(*' 2!3' ' <*-&6*' *0.!4-.' !D*' .2*' -/430;3' 2*' 2&1' .A*;=*';!-./(3' A!.2' <041;*3' /,' (/13' &41' &O*3' A2/6' 2*' A&3' </041' ./' 1!36!33' /4' (*"*4.*(!4>' /6*' 4' .2*' 7(/F =!4-*' 2*' -/6<!4*1' 6!;!.&(5' &41' K01!-!&;' 7/A*(' /=*(' .2*' 30<K*-.' 7*/7;*3' &41' .2* /6&4' -!.!Q*43' &;!D*[/4;5' .2&.' !4' .2*' -&3*' /,' .2*' ;&..*(' /4' &' &7!.&;' -2&(>*' 2*' 2&1' ./&;;/A' .2*6' &4' &77*&;' ./' /6*' /' &1 6!4!3.*(K03.!-*' 2*' .(&=*;;*1' !4' .2*' A!4F .*(',(/6'./A4' ./'./A4' 4' .2*' -&3*' /,' A&(' 2*' 6!>2.' /(1*(' /0.' .2*' /6&4' -!.!Q*43' &3' A*;;' &3' .2*' 7(/=!4-!&;3' !3' 7/A*(' A&3' &<3/;0.*;5' 04;!6!.*1' 3/' .2&.' 2*' 6!>2.' <*' >0!;.5' /,' .2*' >(*&.*3.' /77(*33!/4' &41' *OF ./(.!/4' &41' A&3' /4;5';!&<;*' ./' 7(/3*-0.!/4',/(',2*3*' /,,*4-*3' /4' .2*' *07!(5' 1,' 2!3' /,,!-*' *' 6!>2.' &1=&4-*' &' -;&!6' ,/(' &.(!06 72' /(' &4' ' &' ,/(' 6!;!.&(5' 3*(=!-*3' 2*4' .2*' 3*4&./(!&;' 7(/=!4-*3' -&6*' >*4*(&;;5' ./' 2&=*' 4/' &(65' 041*(' .2*' 67!(*' .2*' 10.!*3' /,' .2*' 7(/-/430;3

<*-&6*' ;!6!.*1' ./' &16!4!3.(&.!/4' 7/;!.!-&;'
&41'K01!-!&;

(1-17!03' ' (**D' 2!3./(!&4'/,' 3*32(&
!&' &;*3.!4*' &' (2*./(!-!&4'&41' &1=/-&.*' <5'
7(/,*33!/4' 4' &41' &,.*(' ?@?' ' 2*' &.F
.*41*1' .2*' >*4*(&;' >;;3&(!03' &3' 7(!=&.*'
3*-(*.&(5' &41'&1=!3*('!4'4*&(;5' &;;' 2!3'-&6F
7&!>43' *' A&3'&,.*(A&(13'6&1*'&'3*4&./('
&41'!4'V?@'A2*4'7(*,*-.'/,' /43.&4.!4/7;*'
A&3'1*7/3*1',(/6'2!3'/,,!-*'<5'&'-/437!(&-5'
&41'32/(.;5'&,.*(A&(13'1!*1'3011*4;5'6/(*'
.2&4'3*=*4.5'5*&(3'/;1' J*' 2&3';*,.'03'&
2!3./(5'/,' 2!3' /A4'.!6*3'1/A4'./' VVC'!4'
!>2.' </D3'1&;!4>'*37*-!&;;5' A!.2' .2*'
A&(3' /,' 03.!4!&4' &>&!43.' .2*' *(3!&43'
&41&;3'&41' &3.' /.23'&'7&4*>5(!-' /4'
.2*'<0!;1!4>3/,' 03.!4!&4'&41'.2*' 6*-1 ./'
,' 3*-(*.' 2!3./(5' 077;*6*4.!4>'.2*' ,!(3.'
6*4.!/4*1'A/(D' .'1!3-;/3*3'.2*'3-&41&;3'
/,' .2*' -/0(.' /,' .2*' 1&5'&41' /4'&--/04./'/,'
!.3' -/4.*4.3'A&3' 4/.'70<;!32*1' 04.!;' &,.*('
.2*' 1*&.2' /,' .2*' &0.2/(' !3' !4,/(6&.!/4'
!3' 7&(.;5' 1*(!=*1',(/6' .2*' /(&;' .*3.!6/45'
/,' /.2*(3'<0.' 2*' 7(*,*(3'./' (*-/(1'2!3'/A4'
07(!*4-*3' 2!3'&41'2!3',(*32'.(*&.6*4.'
/,'2!3'30<K*-.'./>*.2*(' A!.2' 2!3'70(*' &41'
/4' .2*' A2/;*' 3!67;*' 3.5;*B' 6&D*' 2!6' /4*'
/,' .2*' 6/3.'*6!4*4.'&0.2/(3'/,'2!3'&>*

,1-(!3' &0>2.*(' /,' (*-2.2*03' &41'
A!,*'/,' 72B(;03'&
')0'.%*&%' '

(1*. 03'# " ' ' /6&4'K0(!3.'
,/041*(' /,' .2*'3-2//;' -&;;*1'&,.*(' 2!6' .2*'
, / " ' # ' " &/' &41'
/ ; . 9

(/-4(!./(' 041*(' .2*' /6&4' *70<;!-'
6*&4.' .2*' ,0;;5' &--(*1!.*1' &>*4.' /,' &'
7(!=&.*' -!.!Q*4' 41*(' .2*' ;47!(*' .2*'
.!.;*' A&3' >!=14'./' .2/3*' A2/' &3' 2/03*2/;1'
/,,!-*(3' /,' .2*' *67*(/(' A*(*' -/43!1*(*1'
&16!4!3.(&./(3' /,' .2*' !67*(!&;' 70(3*' 2*'
,!3-&;' &16!4!3.(&.!/4' /,' .2*' !67*(!&;' 7(/F
=!4-*3'A&3'!4'.2*'2&413'/,'&' '/,'
*:0*3.(!&4' (&4D'041*(' A2/6' A*(*',(**1'
6*4' /,' .2*' *67*(/(3' <*&(!4>'.2*' 3&6*'
.!.;*' &41' &..*41!4>'./' 7&(.!-0;&(' 1*7&(.F
6*4.3' /,' .2*' &16!4!3.(&.!/4' 4' .2*' 3*4&F
./(!&;' 7(/=!4-*3'&;3/' .2*(*' A&3'&4'!67*(!&;'
'!41*7*41*4.'/,' .2*'>/=*(4/('./'
6&4&>*' .2*' 1/6&!43' &41' ./' -/;;*-.' .2*'
(*=*40*3'<*;/4>!4>'./' .2*' ' 0(.2*('
.2*(*' A*(*' 7&(.!-0;&(' 7(/=!4-*3' A2!-2'
<*,/(*' .2*5' A*(*' &16!4!3.*(*1' &3' &-.0&;'
7(/=!4-*3' A*(*' >/=*(4*1' &3' 1/6&!43' <5'
&4' &16!4!3.(&./('&77/!4.*1'<5'.2*' *67*(/('
&41' 7*(3/4&;;5' (*37/43!<;*' ./' 2!6' *'
;!D*A!3*' A&3' 3.5;*1' ' &41' !4'
>*4*(&;' 2&1' &' 7/3!.!/4' 3!6!;&(' ./' .2&.' /,'
.2*' /.2*(' >/=*(4/(3' 0-2' &'

A&3' /0.!03' !;&.*' !4' 01&*&'A2!-2',/('
;/4>'.!6*' A&3' 041*(' &' ' 2'
!67*(!&;' -2!*,' .(*&30(5'A&3'&16!4!3.*(*1'
<5' &' ' ' < M"3 ' &;3/' -&;;*1'
' ' &.',!(3.'&4'!67*(!&;',(**1'
6&4'<0.'&,.*(' .2*' @41' -*4.0(5' &' D4!>2.'
/' &16!4!3.*(' .2*' !67*(!&;' 7(!=5' 70(3*'
!4./' A2!-2',;/A*1' .2*' (*=*40*3',(/6'.2*'
-(/A4';&413'&41'.2*'7(!=&.*',/(.04*'/,' .2*'
67(/(' .2*(*' A*(*'37*-!&;'7(/-0(&./(3
(11!-03' ' (**D' /72!3./,' /3' -/4F
.*67/(&(5' A!.2' /-(&.*3' *' (*7*&.*1;5'
=!3!.*1' .2*43'&3'&4'&6<&33&1/(',(/6'2!3'
4&.!=*' -/!6.(5' 2*' &77;&03*' A2!-2'2!3'
37**-2*3'>&!4*1'.2*(*' !410-*1'2!6'./'-/6*'
,/(A&(1'&3'&(2*./(!-!&4' 4'2!3';*-.0(*3'
/4';!.*(&(5'3.5;*'2*';&!1'-2!*,'3.(*33'/4'.2*'
(!>2.'03*' /,' A/(13'&41'.2*'&--0(&.*'1!3'
6 6!4&.!/4'<*.A**4'354/4563'&41'.2*(*<5'
7&=*1'.2*'A&5',/(' .2*' 1!&;*-.!-' 1!3-033!/43'
/,' /-(&.*3' /4*' /,' 2!3';*-.0(*3'2&=*'
-/6*'1/A4'./' 03' !4' .2*!(' /(!>!4&;',/(6'
' 2&=' .2*' 30<3.&4-*' /4;5' /,' 2!3'-*;*F
<(&.*1',&<;*' /,' .2*' $(' ' $ '
f7(*3*(=*1'<5']*4/72/4' ' !!'
``'@$" Cg'

(11!>!06' 2*' &.!4'.*(6',(' &4' 04F
4&.0(&;' /(' &.' &45' (&.*' 04030&;' &41' !4*0'
7;!-&<;*' 72*4/6*4/4'A2!-2'A&3' &;A&53'
.(*&.*1'&3'(*:0!(!4>'*07!&.!/4'& 6 '
2!3' &3' /4;5'1/4*'/4'<*2&;' /,' .2*' .&.*'
!,' .2*' 72*4/6*4/4' 2&1'<**4' /<3*(=*1' /4'
>(/041'<*;/4>!4>'./' .2*' .&.*' 2*' *4&.*'
&-.!4>' /4' .2*' &1=!-*' /,' .2*' 7/4.!,,3' /(F
1&!4*1'*!.2*('7&(.!-0;&('3&-(!,!-*3'./' 37*-!F
,!*1'1*!.!*3'/(' &' 4!4*'1&53'3&-(!,!-*' /(' &'
70<;!-'!4.*(-*33!/4'&41';*,.'.2*'*0*-0./4'
/,'.2*'/(1!4&4-*'./' .2*'-/430;3' ,' &' 2'
1 ' -&03*1' 3/' 60-2' &;&(6' .2&.' .2*'
030&;'6*&43'/,'*07!&.!/4' **6*1'!430,,!-!*4.'
.2*' *4&.*' 2&1' (*-/0(3*' ./' .2*' !<5;;!4*'
</D3'/(' .2*' .(03-&4' (' # '
/ # ' /(' .2*' 1 ' /,' &'
.2041A2/;.' '))

(R1(?6!' (**D' 3D!(6!32*(3' # '
/

(??1(;&' 2*' (!>2.' /,' /--075!4>'.2*'
,(/4.'(/A'/,'3*&.3'4*0.'.2*' ('.2*'
1(&6&.!-'7*(,/(6&4-*3'!4'.2*' (**D'.2*&.(*'
2!3'1!3.!4-.!/4'A&3'*4K/5*1'<5'.2*'7(!*3.3'
.2*'-2!*,'6&>!3.(&.*3'1!3.!4>0!32*1'-!.!Q*43'
.2*' 1*3-*41&4.3' /,' .2/3*' A2/' 2&1' ,&;;*4'
!4' <&..;*' ,/(' .2*!(' -/04.(5'&41' 6*6<*(3'
/,' ,/(*!>4'3.&.*3'A2/6'!.' A&3' 1*3!(*1'./'
2/4/0(*37*-!&;;5'&6<&33&1/(3' 2*' .*(6'
&;3/'1*4/.*3'.2*' 7(*3!1*4-5'&.' .2*' /04-!;'
' ?) ' &41' !4' .2*' &33*6<;!*3' /,' .2*'
7*/7;*' f4' .2*' V.2' -*4.0(5' ' (' .2*'
: + ' 041*(' .2*!(' 7(*3!1*1

/=*(' .2*' /04-!;' &41' .2*' &33* 6<;!*3' /,' .2*' 7*/7;*' !4' .2*' C.2 ' .2*' GJ ' A*(*' !43.!.0.*1 ' 2*' ;&..*(' A*(*' &77/!4.*1' /4' *&-2' /--&3!/4' ,(/6' 4!4*' /,' .2*' .(!<*3' &41' .2*' 7(*3!1*4.!&;' 10.!*3' A*(*' .(&43,*((B' ./' .2*6' &41' .2*!(' ' 8&' 6*6<*(' /,' .2*' .*4.2' .(!<*9' **' (!3./.;*' $ " "' ' ' CC' 77' $? "C' *1' &4153 g

(/*.03' /4' /,' <&3' /,' (>/3' &41' .A!4' <(/.2*('/,' -(;3;03' 07*;:*1',(/6'2!3'2/6*' <5' 2!3' <(/.2*(' 2*' ,;:*1' ./' .2*' D!4>' /,' .2*' !5-!&43' <&.*3' A2/'>&=*' 2!6'!4' 6&((!&>*' ;!3' 1&0>2.*(' 4.*!&' 8!4' .2*' .(&>*1!&43' .*4 </*&9'&41'-/67*;:*1' -!"!3!03' ./' (*3!>4' !4' 2!3' ,&=/0(' .2*' 3/=*(*!>4.5' /,' !(543' *(*' .2*' 5-;/7*3' <0!;' 2!6' &' ./A4' /,' !67(*>4&<;*' 3.(*4>.2' !3' 1&0>2.*(3' A*(*' 704!32*1' A!.2' 6&14*33' *!.2*(' ,/(' .2*!(' 77/3!.!/4' ./' .2*' A/(32!7' /,' !/45303' /(' 8&--/(1!4>' ./' &4/.2*(' &--/04.9' ,/(' .2*!(' 1!3F (*37*-.' ,/(' *(&' 2!3' 6&14*33' 37(*&1' ./' .2*' /.2*(' A/6*4' /,' .2*' ;&41' &41' A&3' /4;5' -0(*1' <5' .2*' !4.*(7/3!.!/4' /,' `; 67!!3' 8K = 9' !3' 3/4' *>&7*4.2*3' *0-2&4>*1' A!.2' *(3*03' .2*' (0;*' /,' !(543',/(' .2&.' /,' (>/3' #$ ' 9

(/;*.&(;!' 2*' 4&6*' !4' .2*' /6&4' -*4.0(!&.*' 353.*6' &' ' ") ' /,' .2/3*' -!.!Q*43' A2/' A*(*' 7;&-*1' !4' .2*' ;/A*3.' /,' .2*' ,!=*' 7(/7*(.5"-;&33*3' &41' A2/' A*(*' *0*67.' ,(/6' 6!;!.&(5'3*(=!-*' &41' .(!<0.*' 2*5' ./!D' .2*!(' 4&6*' ,(/6' .2*' ,&-.' .2&.' .2*5' /4;5' <*4*,!.*1' .2*' .&.*' <5' .2*!(' -2!;1(*4' &' ' 4/.2*(' 4&6*' ,/(' .2*6' !3' " ' ! *' .2/3*' A2/' A*(*' -;&33*1' !4' .2*' ;!3.' /,' -!.!Q*43' &.' .2*' -*4303' 3/;*;5' !4' (*>&(1' ./' .2*!(' 3.&.03' &3' -!.!Q*43' & ' ,.*(A&(13' .2*' (!-2*(' &6/4>' .2*6' A*(*' .&D*4' ./' 3*(=*' !4' .2*' A&(3W .2*3*' A*(*' .2*4' -&;:*1' *' &41' .2/3*' A!.2/0.' &45' 7(/7*(.5' &.' &;;' ' " ' 4' &41' &,.*(' .2*' .!6*' /,' &(!03' A2*4' .2*' ;*=5' /,' .(//73' &3' 4/' ;/4>*(' ,/041*1' /4' .2*' -*4303' .2*' /6&4' &(6!*3' A*(*' (*-(0!.*1' <5' 7(*,*(*4-*' ,(/6' .2*' ;&3.' -;&33

(162-203' 8,!>2.*(' !4' .2*' ,(/4.' (&4D' 7(/.*-./(9' 8$9' 4' *7!.2*.' /,' .2*4*' & 8@9' /4' /,' &(.2>4/73*03' &41' .2*' 5672' ;56>4*' /4*' /,' .2*' ,!7!>24!' &

(?6*.2`!&' ' &)

(16*.2*03' 8.2*' 6&4' /,' /(*.2/0>2.9' /4' /,' .2*' !.&4' !17&.03' &41' .2*' -*&4"4567 2' ;56*4*' <(/.2*(' /,' .;&3' ?4/*.!0' ' &41' ,!7!6*.2*03' ,&.2*(' /,' *0-&;!/4' & 2 ' 2*' 6/3.' &4-!*4.' &--/04.' /,' 2!6' &3' >!=*4' <5' *3!/1' W+(1' V@$"?$?g' !3' &3' ,/;;/A3' !B*4' .2*' >/13' &,.*(' .2*!(' -/4:0*3.' /,' .2*' !.&43' A*(*' 4*>/.!&.!4>' A!.2' 6&4D!41' &</0.' .2*' 2/4/0(' ./' <*' 7&!1' .2*6' (/6*F .2*03' A&3' -2&(>*1' A!.2' .2*' 10.5' /,' 1!=!1F !4>' &' =!-.!6' /,,*(*1' !4' 3&-(!,!-*' ./' .2*' >/13' *' *41*&=/0(*1' ./' !67/3*' 07/4' N " ' <5' 1!=!1!4>' !.' !4' 30-2' &' A&5' &3' -;*=*(;5' ./' -/4-*&;' .2*' 2&;,' A2!-2' -/43!3.*1' /,' ,;*32' &41' .2*' *1!<;*' =!.&;3' 041*(' .2*' 3D!4' /,' .2*' &4!6&;' &41' ./' ;&5' .2*(*/4' .2*' A/(3.' 7&(.' .2*' 3./6&-2' A2!;*' 2*' 2*&7*1' .2*' </4*3' ./>*.2*('&41'-/=*(*1'.2*6'A!.2',&.

L*03' 1!=!4*1' .2*' 3.(&.&>*6' <0.' /0.' /,' *46!.5' ./A&(13' 6&4' 70(7/3*;5' -2/3*' .2*' A/(3*' 7/(.!/4' &41' &=*4>*1' 2!63*;,' <5' (*F ,03!4>' 6/(.&;3' .2*' 03*' /,' ,!(*' 2*(*07/4' (/6*.2*03' 3./;*' !.' ,(/6' ;56703' &41' </0>2.' !.' ./' 6*4' !4' &' 2/;;/A' (**1' 3' &' 3*./,,' ./' .2!3' >(*&.' <;*33!4>' L*03' (*3/;=*1' ./' *41' .2*6' &4' *:0&;;5' >(*&.' *=!;' *' -&03*1' *72&*3.03' ./' 6&D*' /,' -;&5' &' <*&0F .!,0;' A/6&4' 4&6*1' &41 (&' .2&.' !3' .2*' &;;">!,.*1*' ,/(' .2*' >/13' 7(*3*4.*1' 2*(' A!.2' &;;' 6&44*(' /,' *=!;3'.(/0<;*3'&41'1!3*&3*3'<*,/(*' 04D4/A4' ./' 6&4' &41' 37(*&1' /=*(' &;;' .2*' *&(.2' 4;5'1*;03!=*' /7*' (*6&!4*1'!4' .2*' K&(' 3!4-*' <*,/(*' 32*' -/0;1' *3-&7*' &41/(&' 70.' .2*' ;!1' /4' .2*' K&(' &>&!4' ,7 <(,-3' " ' 5 : ' VC"$NVg' 0.' (/6*.2*03' 6*.' A!.2' 2!3' 704!32 6*4.' L*03' </041' 2!6' !;;' &1&F 6&4.!4*' ,*..*(3' ./' &7!;;&(' A!.2' &4' *&>;*' ./' -/430 6*' !4' .2*' 1&5"!6*' 2!3' ;!=*(' A2!-2' >(*A' &>&!4' !4' .2*' 4!>2.' .;&3.' *(J-;`3' A!.2' .2*' -/43*4.' /,' L*03' A2/' 1*3!(*1' ./' !4-(*&3*' 2!3' 3/4 3' (*4/A4' D!;;*1' .2*' *&>;*' &41' 3*.' .2*' 3/4' /,' ;&7 .03',(**' --/(1!4>' ./' .2!3' &--/04.' .2*' >0!;*' /,' (/6*.2*03' &41' 2!3' /77/3!.!/4' ./' .2*' A!;;' /,' L*03' </0>2.' /4' 6&4',&(' 6/(/*' *=!;' .2&4>//1

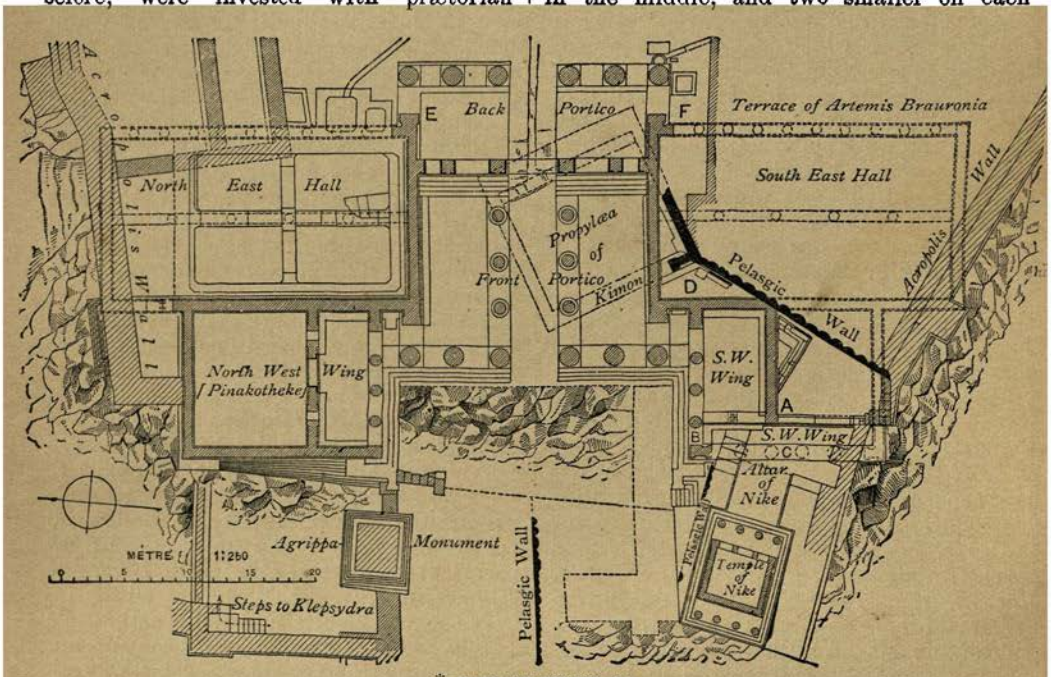
3-25;03' /4' .2*' /.2*(' 2&41' .&D!4>' .2*' =!*A' 30>>*3.*1' <5' .2*' ..!-' -0;.' /,' (/6*F .2*03' !4' A2!-2' .2*' ,!(*"<(!4>!4>'>/1' A&3' 2/4/0(*1' &3' .2*' ,/041*(' /,' 206&4' -!=!;!Q&F .!/4' >&=*' .2*' 65.2' &4' *4.!(*;5' 1!,,*(*4.' ,/(6' !4' 2!3' .(!;/>5' /,' , (' ('A 2' (' , ' (' " ' ' , ' (' 7 ' 4' .2*3*' (/6*.2*03' !3' 3.!;;' /,' -/0(3*' .2*' /77/4*4.' /,' L*03' <0.' &.' .2*' 3&6*' .!6*' 2*' !3' (*7(*3*4.*1' &3' ,0;;' /,' .2*' 6/3.' 1*=/.*1' ;/=*' ,/(' .2*' 206&4' (&-*

")3-25;03 6&D*3 2!6 3/4 /, 2?6;3 <5 BD/6 2* !3 70. !4 7/33*33!/4 /, &;, .2* 3*-(*.3 /, .2*,0.0(* 4 .2* A&(A!.2 .2* !.&43 2!3 &1=!-* &33!3.*1 L*03 ./ =!-./(5 0. A2*4 .2* >/1 &,.*(.2* 7&(.!.!/4 /, .2* A/(;1 (*3/;=*1 /4 1*3.(/5!4> .2* (01* 206&4 (&-* &41 ./ -(*&.* /.2*(* <*!4>3 !4 .2*!(3.*&1 (/6*.2*03 &;/4* -/4-*(4*1 2!63*;, A!.2 .2*,&.* /, A(*.-2*1 6/(.&;3 %&41 3&=*1 .2*6 ,(/6 1*3.(0-./4 * <(/0>2. .2*6 .2* ,!(* 2* 2&1 3./;*4 ,(/6 *72&*3.03&. *64 3 .2* ,!(* .2&. A&3 ./ <*-/6 * .2* 3/0(-* /, &;, 1!3-/=*(!*3 &41 /, 6&3.*(5 /=*(4&.0(* &41 (&!3*1 .2*6 ./ & 2!>2*(-!=!;!Q&.!/4 <5 2!3 !4=*4.!=* 3D!;, &41 <5 .2* &(.3 A2!-2 2* .&0>2. 6&4D!41 /(.2!3 2* A&3 704!32*1 <5 <*!4>. -2&!4*1 "/4 &(/-D <*3!1* .2* 3*4 !4 .2* A!;13 /, % -5.2!& -*&403 &1=!3*1 2!6 ./ <*41 <*4*&.2 .2* 6!>2. /, L*03 <0. 2* -/43/;*1 2!63*;, A!.2 .2* D4/A;*1>* .2&.!, .2* >/1 <*>&. & 3/4 <5 & -*(.&!4 >/11*33 D4/A4 ./ 2!63*;, &;/4* &+(.2&.3/4 A/0;1 1*F .2(/4* 2!3 ,&.2*(2*4 4/6*4&-*3 -/0;1 .*&(, (/;4 2!6 .2* 3*-(*. L*03 20(;*1 2!6 A!.2 & .2041*(</;. !4./ &(.&(03 ./>*.2*(A!.2 (/-D ./ A2!-2 2* A&3 -2&!4*1 % (/6 .2!3 &</1* 2*,!(3.*6*(>*1 !4./ .2* ;!>2./, 1&5 &;/4> .!6* &,.*(./ <*,&3.*4*1 G/4 /04. &0-J303 &41 ./6 <5 .2* *&>;* !4.!; &4/.2*(!66/(.&; =/;04.&(!;5 *4.*(*1 &1`3 ,/(2!6 . ;&3. *(&-;*3 /4 2!3 K/0(4*5./ .2* *37*(;1*3 32/. .2* *&>;* .2* -*2.&0(2!(/4 & 30,,*(!4> ,(/6 "2!3 !4-0(&<;* A/041 >;&1;5 (*4/04-*1 2!3 6 6/(.&;!.5 &41 &,.*((/6*.2*03 2&1 (*=*&;*1 .2* 4&6* /, .2*>/11*33 2* A&3 3*. ,(** 0. &3 &3!>4 /, 2!3 704!32 6*4. 2* G*=*(&,.*(</(* /4 2!3 ,!4>*(&4 !(/4 (!4> (&41 /4 2!3 2*&1 & A!;;/A -(/A4 * (*F .0(4*1./ ;56703 &41 /4-* 6/(* <*-&6* (&1=!3*(&41 7(/72*./, .2* >/13 *>*413 (*;&.*1 .2&. 2* 6/0;1*1 6*4 &41 &4!6&;3 %/, -;&5 &41 *!.2*(&4!6&.*1 .2*3* 2!63*;, A!.2 .2* 2*&=*4;5 ,!(* /(!410-*1 L*03 .2*4* ./1/3/ f =!1 !R$" /(&-* ! $?$ g 4 .2*43 (/6*.2*03 32&(*1 A!.2 *72&*3.03 &-/66/4 &;.&(!4 .2* -&1*65 !4 .2* 3&-(*1 7(*-!4-. %/, .2*4* &41 A&3 2/4/0(*1 A!.2 &./(-2 (&-* !4 & 5*&(;5 ,*3.!=&; -&;,*1 .2* , (! (14`V3 &6 4 & (**D .*67;* .2* G*4.(&4-* 2&;, ./.2* .*67;* 7(/7*(/(" / & (17*(.!03 & - /6&4 *;*>!&-7/*. </(4 &. 3!3!06 & !4 6<(!& f (/7 $ $@$"?& 41?V"?' ! @@ T 2* %1&.* /, 2!3 <!(.2 !3 04-*(.&!4 * A&# 3/6*A2&. /;1*(.2&4 =!1 &41 A&3 7(/F <&<;5 </6 &</0. ?N & ;, * ;/3. 2!3 7&(*4.3 &. &4 &(;5 &>** &41 .2(/0>2 .2* >*4*(&; -/4,!3-&.!/4 /, ;&41 !4 C@ A&3 1*7(!=*1 /, .2*>(*&.*(7&(. /, 2!3 7&.*(4&; *3.&.* .!;; 2* 7/33*33*1 *4/0>2 ./ ;!=* &-&(*;*33 7/*. 3 ;!,* &. /6* 06!.2*(2* 2&1 7(/-**1*1 3//4 &,.*(-/6!4> /, &> f&</0. C 0 * .2*(* &33/-!&.*1 A!.2 2!3 7&.(/4 3*- &3 &41 A!.2 <(/.2*(7/*.3 30-2 &3 *(>!; &41 =!1 /* -/67;*.* 2!3 3.01!*3 2* &,.*(A&(13 A*4. ./ .2*43 2*4 2* A&3 3.!;; :0!.* 5/04> .2* 7/*.3 37!(!. A/D* A!.2!4 2!6 &41 *07&41*1 .2(/0>2 2!3 &..&-26*4. ./ .2* <*&0.!,0; &41 A!..5 /3.!& 41*(.2* 4&6* $:" (32* 2*4-*,/(.2 A&3 .2* 30<K*-. /, 2!3 ;/=*" 7/*63 /(,!=* 5*&(3 < & @R"@ g .2!3 &..&-26*4.; &3.*1 .2/0>2 /,.*4 1!3.0(<*1 <5 .2* K*&;/035 /, .2* 3*43!.!=* 7/*. &41 .2* -&7(!*!/034*3 / , 2!3 6!3.(*33 2*4 !. 2&1-/6* ./ &4*41 &41 *=*4&,.*(d 54.2!& 3 1*&.2 87(/<& 5 <*,/(* & $R9 .2* 7/*. -/0;1 4/. , /(>*. 2!3 /;1 7&33!/4 * 2!6F 3*;, 1!*1 5/04> * /, .*4 *07(*33*3 , /(*F </1!4>3 /, &4 *&(;5 1*&.2 .2*(* !3 4/ !41!-&.!/4 !4 2!3 7/*63 .2&. &45 /, .2*6 A*(* A(!..*4 ;&.*(.2&4 $?& 2*5 2&=* -/6* 1/A4 ./ 43 !4 ,/0(</!D3 <0. 3/6* 3-2/;&(3 &(* /, /7!4!/4 .2&. .2* 7/*. 2!63*;, 2&1 1!=!1*1 .2*6 !4./ ,!=* &41 .2&. .2* (!>!4&; 3*-/41 &41 .2!(1 </!D3 2&=* <**4 04!.*1 7*(2&73 .2(/0>2 .2* /=*(3!>2. /, ,(!*413 &. .2* 70<;!-&.!/4 /, .2* ;&3. (/F 7*(.!03 2!6 3*;, 3**6 3 ./ 2&=* /4;5 70<;!32*1 .2* ,!(3. 4 .2* ,!(3. /0(</!D3 &6&./(5 7/*63 7(*7/41*(&.* 2* ,!,.2 </!D , .!* -/4,03B /(1*(/, A2!-2 6&5 A*;, 2* (* ,*((*1./ .2* 7/*. 3 04.!6*;5 1*&.2 1*&;3 6&!4;5 A!.2 30<K*-.3 .&D*4 ,(/6 /6&4 ;*>*413 &41 2!3./(5 !4 .2* 3&6* A&5 &3 =!1 30<3*:0*4.;5 .(*&.*1 .2*6 !4 .2* A

(/7*(.!03 7/33*33*3 &7/*.!-&, >*4!03 A!.2 A2!-2 2!3 .&;*4. !3 04&<;* ./ D**7 7&-* 41/A*1 A!.2 &4&.0(* .!<;* /, 7&33!/4 &3 1**7 &3 !. A&3 3.(/4> &3 &(1*4. &3 !. A&3 *&3!;5 *=/D*1 &41 7/33*33*1 /, & !-D ,&4-5 2* 3.(!=*3 ./ *07(*33 .2* ,0;4*33 /, 2!3 .2/0>2.3 &41 ,**;!4>3 !4 & 6&44*(6/1*;*1 6/3*;5 /4 .2&. /, 2!3 (**D 6&3.*(3 &41 5*. !4 2!3 3.(0>>;* A!.2 ;!4>0!3.!-&41 6*.(!-&, /(6 2* ,&!;3 ./ &..&!4 .2* &>(**&<;* !4 *=*(5 !43.&4-* !3 *07(*33!/4 !3 /, .*4 7*-0;!&(;5 2&(32 &41 1!, ,!-0; &41 2!3 6*&4!4> !3 ,(* :0*4.;5 /<3-0(*1 <5 ,&(",*.-2*1 &;;03!/43 ./ 04,&6!;!&(;*>*413 /(&-.0&; .(&43-(!7.3 /, .2*6 *(*!4 2* ,/;;/A3 .2* *0&67;* /,

his models, the Alexandrine poets, Callĭmăchus and Phĭlētas. Nevertheless he is a great poet, and none of his countrymen [except Catullus] have depicted the fire of passion so truly and so vividly as he.

Prōprætor (*prō prætōrĕ*). The name among the Romans of a past prætor who, on the expiration of his office, proceeded to administer (generally for a year) the prætorian province assigned him by lot at the beginning of his office. Occasionally this title was also borne by those who, without having been prætors immediately before, were invested with prætorian



* PLAN OF PROPYLÆA.
The dotted portions were projected only.
(Miss Harrison's *Mythology, etc., of Athens*, p. 352, after Dörpfeld, *Mittheilungen*, 1885).

powers; in particular, by the quæstors left behind by the governors in the provinces. Apart from the fact that the proprætor had only six lictors, he had essentially the same position in the province as the proconsul (*q.v.*). Under the Empire this title was also given to the governors of the imperial provinces, as distinguished from the proconsuls, the governors of the senatorial provinces.

Prŏpўlæă (*Greek*). A temple-like porch leading into a temple inclosure. [Thus there were *propylæa* to the temple of Athēnē at Sūnĭum, and of Dēmētēr at Eleusis (*see* plan of ELEUSIS)]. The most celebrated was that built at the west end of the Acrŏpŏlĭs (*see* plan of ACROPOLIS). This was built of Pentĕlic marble between 437 and 432 B.C., under the auspices of Pericles, at a cost of 2,012 talents (about £402,400). The architect was Mnēsĭclēs. The main building, a quadrangle of large dimensions, inclosed by walls to the right and left, and open in the direction of the city and the Acropolis, was transversely divided by a wall into two porticoes, that in front being about twice the depth of that behind. The dividing wall had five openings, the widest in the middle, and two smaller on each side. The deeper portico in front of this dividing wall was faced by six Doric columns with the spaces between them corresponding in breadth to the five openings in the dividing wall, the space in the centre being nearly 18 feet, the two on each side about 12 and 11 feet. The portico beyond the division was similarly faced by six Doric columns. The columns of the outer portico were 29 feet high, those of the inner somewhat less, but the ground on which they stand is 6½ feet higher, so that the pediment of the inner portico was nearly 5 feet higher than that of the outer portico. Two rows of three slender Ionic columns, about

' ,**.' 2!>;!' 3.//1' /4' *!.2*(' 3!1*' /,' .2*' (/&1' .2&.' (!3*3' ./A&(13' .2*' 6!11;*' *4.(&4-*' 2*3*' 1!=!1*1' .2*' 1**7' /0.*(' 7/(.!-/' !4./' .2(*+' -/;/44&1*3' 37&44*1' <5'3;*41*(' <*&63' /,' 6&(<;*' =!.2' &' -/,,*(*1' -*!;!4>' 1*-/(&.*1' A!.2' >!;.' 7&;6*../' /(4&6*4.3' /4' &' <!4*' >(/041' /0(' 3.*73' ;*1',(/6' /0.3!1*' ./' .2*' . =/' 3!1*' -/;/44&1*3' /,' .2*' /0.*(' 7/(.!-/' &41' ,(/6' .2*' ,&(.2*(' *41' /,' .2*' ;&..*(',!=*' 6&(<;*' 3.*73' (/3*' ./' .2*' 3!1*' 1//(3' /,' .2*' 1!=!3!/4' <*.A**4' .2*' 7/(.!-/*3' '-/43!1*(&<;*' 7&(./,' .2*' -/;0643' !3' 3.!;;' 3.&41!4>' /' .2*' 6&!4' <0!;1!4>' A*(*' &..&-2*1' .A/' 3!1*"A!4>3' 3.!;;' !4',&!(;5'>//1' 7(*3*(=&.!/4'4/.' 3/' 2!>2' <0.';!D*' .2*' 6&!4' <0!;1!4>',0(4!32*1' A!.2' -/;0 6 4*1' -2&6<*(3' 2*' ;&(>*(' /,' .2*3*' .2*' 4/(."A*3.' A!4>' 84/A' >*4*(&;;5'-&;;*1' .2*' A " '-/4.&!4*1' &' -/;;*-.!/4' /,' 7!-.0(*3' f 2*' 3/0.2"A*3.' A!4>' !3' 60-2' 36&;;*(' &41' 1/*3' 4/.' -/((*37/41' ./' .2&.' /4' .2*' 4/(."A*3.' 2*' &(-2!.*-.' &'30>>*3.*1' <5' (' /(7,*;1' A&3' 7(/<&<;5' -/67*;;*1' ./' 6/1!,5' 2!3' /(!>!4&;' 7;&4' <*-&03*' !.' =/0;1' 2&=*' !4.(01*1' /4' .2*' 3&-(*1' 7(*-!4-.3' /,' .2*4*' !D>' ' 7(/K*-.*1' 3/0.2"*&3.' 2&;;' A&3' 3!6!;&(;5'>!=*4' 07' <*-&03*' /,' .2*' 7(*F -!4-.3' /,' (. 6!3' (&0(/4!&" &41' &' -/((*F 37/41!4>' 4/(.2"*&3.' 2&;;' A&3' 4/.' -&((!*1' /0.' /A!4>' ./' .2*' /0.<(*&D' /,' .2*' *;/F 7/44*3!&4' &(' # ' 7;&49 g' /(' .2*' (//6' !4' .2*' (**D' 2/03*' -&;;*1' : " ' ' /)

(/(/>&.;/' 2*' /6&4' .*(6' ,/(' .2*' *0.*43!/4' *!.2*(' /,' &' 6&43' 5*&(' /,' /,.!-*' & 1 ' 1 ' /(' /,' &' 307(*6*' -/66&41' # 1 ' /(' /,' &' 7(/=!4-!&;' &16!4!3.(&.!/4' # 1 ' V "

(13-*4!46' '

(/3*(7!4&' '

(1311!46' ' D!41' /,' 3/4>' >*4*(&;;5' 304>' ./' .2*' &--/67&4!6*4.'/,' .2*' ,;0.*' &.',*3.&;' 7(/-*33!/43' ./' .2*' .*67;*'/(' .2*' &;.&(' -2!*,;5' !4' .2*' A/(32!7' /,' 7/;;/' .' 2&1' &(25.26' -/((*37/41!4>' ./' .2*' 6*&30(*' /,' .2*' 6&(-2

(/3.,.3' ' /.(3 '#6

(/3.5;13' #6 ' #+' 221(' P' 5 #$' 620 3!' 3' 9'63#(Q' 3' +/ #$+#' 69' '#+ /2+' #"S/ ' 5 #$' #$+' 620 3!' 3' 9'63#' 69' #!' /6'# 6' !# 3& 38' 6 /2+#+21' 9'++' 9'6 ' #$+' 9'63#'5 22'69'#$+'#+ /2+' #!+29' # ' ' 98'

(/.&>/4!3.>3' 4' .2*' (**D' 1(&6&' .2*' &-/(' A2/' 7;&5*1' .2*' ;*&1!4>' 7&(.

(1.&>1(&3' " (**D' /72!3.' /,' <1*(&' </(4' &</0.' CRN' -' *' 7&33*1' 3/6*',/(.5' 5*&(3' !4' .(&=*;;!4>' .2(/0>2' .2*' 1!,,*(*4.' ./A43' /,' (**-*' &3' &' .*&-2*(' <0.' 3.&5*1 -2!*,;5' &.' .2*43' 2*(*' 2*' A&3' 2!>2;5' 2-4/0(*1' /4' &--/04.' /,' 2!3' ;*&(4!4>' *37*F -!&;;5'<5' *(!-;*3'04.!;' 2*' A&3' *07*;;*1',/(' &.2*!3.!-&;' 3.&.*6*4.3' !4' &' .(*&.!3*' "' (6 ' &41' 2!3' A/(D3' A*,B0<;!*;5' <0(4.' *' 1!*1' &.' .2*' &>*' /,' UN' !3' .*&-2!4>' A&3" -2!*,;5'1!(*-.*1' ./' .2*' *07/3!.!/4' /,'>(&66&(' &41' (2*./(!-' 4' 2!3' 72!;/3/72!-&;c=!*A3' 2*' ,/;;/ =*1' *(&-;!.03' ..&43,*((!4>' .2*" .*&-2!4>' /,' .2*' ;&..*(' /4' .2*' *.*(4&;',;00' /,' 6&..*(' ./' 206&4' D4/A;*1>*' A2!-2' &3' 2*' .2/0>2.' A&3' 6*(*;5' &' 0<K*-.!=*' &41' &<3/;0.*'.(0.2' 2!3' !3' .2*' 7/!4.' /,' 2!3' -*;*<(&.*1' 7(/7/3!F .!/4' H' &4' !3' .2*' 6*&30(*' ',&;;' .2!4>3' /,' .2/3*' A2!-2' &(*' .2&.' .2*5' &(*" /,' .2/3*" A2!-2' &(*' 4/.' .2&.' .2*5' &(*' 2/.' f ;&./' +(' $V@" !/>*4*3' &*(.!03' !0' V$$ (?.?3;;&03' /4' /,' 72!-;03' D!4>' /,' 2B;&-*' !4' 2*33&;5' *' (!(&3 .2*',!(3.'./' ;*&7' /4' ./' .2*' 3/!;' /,' (/5' &.' .2*' ;&41!4>' /,' .2*' (**D3' &;.2/0>2' 2*' D4*A' .2&.' .2*',!(3.' A2/' 3*.',/.' /4' (K&4' >(/041' 603.' 1!*' *' A&3' ,/(.2A!.2' D!;;*1' <5' *-./(% !3' 6*4' A*(*' .2*4' ;*1' <5' 2!3' 5/04>*(' <(/.2*(' <1&(-*3' % !3' A!,*' &/1J4*!& 1&0>2.*(' /,' -&3.03' /<.&!4*1',(/6' .2*' >/13' .2*' </4' .2&.' (/.*3!;&03' ./' =2/632*' 2&1' /4;5'<**4' 6&((!*1',/(' /4*' 1&5' 6!>2.' (*.0(4' ./' *&(.2' .2(**' 2/0(3' 2*4' 2*' 1!*1' &>&!4' 32*' K/!4*1' 2!6'!4' 1*&.2' -</(1!0>' ./' &4/.2*(' ;*>*41' 32*' 2&1' &' A&O' !6&>*' /,' 2!6' 6&1*' ./' A2!-2' 32*' 7&!1' 1!=!4*' 2/4/0(3*' &41' A2*4' 2*(',&.2*(' <0(4.'!.' /4' &' ,04*(&;' 7!;*' 32*' .2(*A' 2*(3*;' /4' .2*' ,;&6*3' !4' 1*37&!(' &41' 1!*1

(/.*03' --/(1!4>' ./' /6*(' fX2,' !=' RVCBV? g' &4' /;1' 6&4' /,' .2*' 3*&' &' 30<K*-.' /,' ,!3*!1/4' A2/' .*41*1' .2*' 3*&;3' A2!-2' &(*' .2*' ,;/-D3' /,' 672!.(;.' !D*' &;' 6&(!4*' 1*!.!*3' 2*' 7/33*33*1' .2*' >!,' /,' 7(/F 72*-5' &41' .2*' 7/A*(' /,' &3306!4>' &45' 32&7*' 2*' 7;*&3*1' *' 03*1' ./' 3;**7' &.' 6!1"1&5' /4' .2*' !3;&41' /,' 2./3' 4*&(' >57.' 2*4' *4*;&0' /4' 2!3' (*.0(4' ,(/6' (/5' A&3' 1*.&!4*1' <5' -/4.(&(5' A!413' /4' .2*' !3;&41' 2*' 30(7(!3*1' (/.*03' <5' .2*' &1=!-*' /,' 2!3' 1&0>2.*(' 1 .2 &' &41' !4' 37!.*' /,' &;;' 2!3' .(&43,/(6&.!/43' 2*;1' 2!6' ,&3.' 04.!;' 2*' ./;1' 2!6' .2*' 6*&43' ,/(' (*.0(4!4>' 2/6*' --/(1!4>' ./' ;&.*(' ;*>*413' f */F 1/.03' !!' $$@' $$R" 0(!7!1*3' "[' (/.*03' A&3' &' 3/4' /,' /3*!1/4' &41' A&3' &4' >57.!&4' D!4>' ;!=!4>' <4' .2*' !3;&41' /,' 2&(/3' ./' A2/6' *(6*3' -/410-.*1' *;*4' (2*4' 32*' A&3' -&((!*1' /,,' <5' &(!3' A2!;*' /4;5' &' 72&4./6' ,/;;/ =*1' &(!3' ./' (/5' *4*;&03' &3' 2*(*.0(4*1',(/6' (/5' (*-*!=*1' 2!3' A!,*' &>&!4',(/6' 2!6

(1.2B(14 ' ' #6
(1.1> 4*3 ' -*;*<(&.*1 (**D 7&!4.*(/ , &0403 !4 &(!& A2/ ;!=*1 , / (.2* !4/3. 7&(.&. 2/1*3 !4 .2* .!6 */ , ;*0&41*(.2* (*&.&41 2!3 ,!(3. 30--*33/(3 *1!*1 NN ' !3 7/=*(.5 3** 63 ./ 2&=* 7(*=*4.*1 2!6 ,(/ 6 &..*41!4> .2* 3-2//;/ ,&45 /,.2* -*;*<(&.*1 6&3.*(3 /, 2!3 &>* , / (4/ /4* !3 4&6*1 &3 2!3 !43.(0-./(*;/4>(*6&!4*1 7//(04.!; .2* 043*;,!32 &16!(&.!/4 A2!-2 2!3 -/4.*67/(&(5 &41 <(/.2*(7&!4.*(7*;;*3 32/A*1 , / (2!3 A/(D3 (&!3*1 2!6 !4 (!7*(5*&(3./>(*&.-*;*<(!.5 !3 A/(D3 /A!4>./ .2* *0-*33!=* -&(* 2* <*3./A*1 /4 .2*6 A*(* ,*A!4 406<*(<0.2*!(7*(F ,*-.*0*-0.!/4;*1./ .2*!(<*!4> (&4D*1 <5 .2* 04&4!6/03 =/!-* /, &4.!:0!.5&6/4> .2* 2!>2*3.7(/10-.!/43 /, &(. !3 6/3.-*;*F <(&.*1 A/(D3 A*(* &7 "1 : &41 &;3/ & 7&!4.!4> (*7(*3*4.!4> .2* 2/1!&4 2*(/ : 4.2* ;&..*(2* 37*4.3*=*4 /(&--/(1!4>./ /.2*(3 &3 6&45 &3 *;*=*4 5*&(3 / !430(* !.3 7*(6&4*4-* 2* -/=*(*1 !. A!.2 ,/0(1!3.!4-. -/&.3 /, 7&!4.3/ .2&. A2*4 .2* 077*(-/&.!4> 7*(!32*1 .2* ;/A*(6!>2.&D*3 !.3 7;&-* f ;!45 >0 ' ' OOO= N"$NVg
(/=!4-;& /6&4 .*(6 !67;5!4> 8$9 & 372*(* / , 10.5 *37*-!&;;5 .2&. &33!>4*1 ./ & -/430; /(7(&*./(A!.2!4 A2!-2 2* *0*(F -!3*1 2!3 1
8@9 .*((!./(5 &-:0!(*1 <5 .2* /6&43 /0.3!1* .2* ;!6!.3 /, .&;5 30<K*-./ .2* 7&56*4./ , .&0*3 &41 &16!4!3.*(*1 <5 & >/=*(4/(41*(.2* *70<;!-.2* /(>&4!Q&F .!/4 /, & -/4:0*(*1 ;&41 &3 & 7(/=!4-* A&3 6&4&>*1 <5 .2* -/4:0*(!4> >*4*(&; A!.2 .2* &1=!-* /, & -/66!33!/4 /, .*4 3*4&./(3 A2/ A*(* 4/6!4&.*1 <5 .2* *4&.* &41 (*-*!=*1 .2*!(!43.(0-.!/43 ,(/6 .2&. </15 2* 7(*=!/03 &16!4!3.(&.!/4 A&3 &;.*(*1 &3 ;!..;* &3 7/33!<;* 3/ ,&(&3 !. A&3 4/. !4-/4,;!-. A!.2 .2* !4.*(*3.3/, /6* B 2* '1- D " 203 *3.&<;!32*1 ,!0*1 ,/(.2* ,0.0(* .2* ,/(6/, >/=*(46*4. 2* ,!(3. 7(/=!4-*3 A*(* !-!;5 8,(/6 @C$ &41 &(1!4!& A!.2 /(3!-& 8,(/6 @ $9 2*!(406<*((/3* 041*(.2* *70<;!-./ ,!,.**4 8<*3!1*3 .2* .A/ &;(*&15 6*4.!/4*19 .2* .A/ 7(/=!4-*3 /, 7&!4 # 2 &41 $;;5(!& J->1?4;& -2&;& 3!& !4/(.2* .A/ &0;3 #+ " " &41 $ " !.254!& 5(*4* &41 (*.* !;!-!& 5(!& 2*!(>/=*(4/(3 A*(* *!.2*(7(/7(&*./(3 8&.,!(3.7!6./(39 /(7(/-/430;3 2* *4&.* 1*-!1*1 A2!-2 7(/=!4-*3 A*(* ./ <* -/430;&(A2!-2 7(&*./(!&4 &41 .2* -/430;3 &41 7(&*./(3 2&1 .2*!((*37*-.!=* 7(/=!4-*3 &33!>4*1 ./ .2*6 <5 ;/. 4 .2* -&3* / , .2* -/430;3 .2!3 A&3 1/4* !6 6*F 1!&.*;5 &,.*(.2*!(*;*-.!/4 !4 .2* *&3* / , .2* 7(&*./(3 &,.*(.2*!(&-.0&; &--*33!/4 ./ /,,!-* 2*4 .2*!(5*&(3 /,,!-* A&3 -/6F 7;*.*1 .2*5 7(/-**1*1 &3 7(/-/430;3 &41 7(/7(&*./(3 ./ .2*!(7(/=!4-*3 &41 3.&5*1 .2*(* &5*&(4.!; .2*5 A*(* (*;!*=*1 <5 .2*!(30--*33/(3 04;*33 &3 ,(*:0*4.;5 2&7F 7*4*1 !. 7(7=*1 4*-*33&(5 ./ 7(/;/4> .2*!(@
.A&3 ./A&!(13 .2* *41 / , .2* *70<;!-8V@ (.2&. !.<*-&6* & (0;* .2&.4/ -/430; /(7(&*./(32/0;1 <* &;;/A*1 ./ <* >/=*(4/(/, & 7(/=!4-* 4.!; ,!=* 5*&(3 &,.*(2* 2&1 -*&3*1 ./ 2/;1 2!3 /,,!-* 2* *4&.* &;3/ 3*..;*1 ,/(*=*(5 >/=*(4/(2!3 3077;5 /, 6/4*5 .(//73 32!73 &41 30<F /(1!4&.*3 2*3* ;&3. !4-;01*1 /4* /(6/(* ' 1 & &41 & 406*(/03 3.&,, 4 .2* >/=*(4/(3 2&413 A&3 -/4-*4.(&.*1 .2* *4.!(* &16!4!3.(&.!=* 7/A*(/=*(.2* 7(/=!4-* * -/66&41*1 .2* >&((!3/4 .(//73 2* 2&1 .2* (!>2./, (&!3!4> & ;*=*5 /, /6&4 -!.!Q*43 &41 7(/=!4-!&;3 &;!D* &41 /, 46D!4> (*:0!3!./43 ./ /<.&!4 .2* 6*&43 ,/(&(* &;3/ 7/33*33*1 K0(!31!-F .!/4 !4 -(!6!4&; &41 -!=!;-&3*3 !4 .2* ,/(6*(A!.2 7/A*(/, ;!, * &41 1*&.2 *0-*7. .2&. /6&4 -!.!Q*43 2&1 .2* (!>2./, &77*&; # , 2!;* !. A&3 -&(*,0;;5 7(*F 3-(!<*1 2 A 60-2 .2* >/=*(4/(3 -/0;1 (*:0!(*, (/6 .2* 7(/=!4-!&;3 , / (.2* 3077/(. / , .2*!(7*(3/4 &41 &..*41&4.3 .2*!(7/A*(3 6&1* !. 7/33!<;* , / (.2*6 ./ *4(!-2 .2*6F 3*;=*3 <5 &;; 6&44*(/, *0./(.!/4 &41 .2!3 <*-&6* .2* (0;* ./ & 6/3. *0.(&/(1!4&(5 *0.*4. >&!43. 30-2 /77(*33!/4 .2* 7(/F =!4-!&;3 2&1 4/ 7(/.*-.!/4 3/ ;/4> &3 .2* >/=*(4/(3 /,,!-* ;&3.*1 .2* A&3 /4;5 /4!.3 .*(6!4&.!/4 .2&. .2*5 -/0;1 !4 *&(;!*(.!6*3 ;&5 & -/67;&!4. <*,/(* .2* *4&.* A2!-2 3*;1/6 ;*1 ./ &45.2!4>* A2!;* &,.*($CT (.2*5 2&1 /7*4 ./ .2*6 .2* 7(/-*10(* /, <(!4>!4> & -2&(>* /, *0./(.!/4 A2!-2 A&3 &..*41*1 A!.2 (1!,,!-0;.5 &41 *07*43* # 2 / (2*3* *0./(.!/43 *(* (*7*&.*1 &4*A 5*&(&,.*(5*&(./>*.2*(A!.2 .2* *0/(<!.&4 1*6&413 /, .2* .&0"-/;;*-./(3 # $ (3 &41 .2* >/=*(4/(3 A2*4 !4= D*1 &>&!43. .2*6 !4 37!.* /, .2*!(&0.2/(!.5 (&(*;5 =*4.0(*1 ./ !4.*(7/3* , (/6 ,*&(/, .2* *:0*3.(!&4 7;0./-(&-5 2* (*30;.A&3 .2&. &. .2* *41 / , .2* *70<;!-. .2* 7(/F =!4-*3 A*(* !4 &<3/;0.* 7/=*(.5 (*&; !67(/=*6*4.!4 .2*!(-/41!.!/4 A&3 <(/0>2. &</0. <5 .2* (*>0;&.!/43 *4,/(-*1 041*(.2* 67!(* A2*4 3/6* 7(/=!4-*3 &..&!4*1 & 2!>2 7!.-2 /, 7(/37*(!.5

(*3!1*1' 2!3' 1!3.!4-.!/4' !430(*1' 6&45' 7(!=!;*>*3' 30-2' &3' ,(**1/6' ,(/6' .&0&.!/4' &41' ,(/6' 70<;!-' <0(1*43' A2!-2' /.2*(A!3*' ,*-;' /4' .2*' (*3!1*4.' &;!*43' &41' !4' >*4*(&;' *0*67.!/4' ,(/6' ./;;3' &41' .&0*3" &;3/' .2*' (!>2.' ./' &-:0!(*' 7(/7*(.5' !4' ;&41' ,(**' &161!33!/4' ./' .2*' *4&.*' &41' ./' .2*' &33*6F <;!*3' /,' .2*' 7*/7;*' *.-' W ' /4-*&00' ; ' , - " ' 6 ! ' $RR?g

(01*4.!03' ;*6*43# ' 2*' 6/3.' !67/(.&4.'&6/4>' .2*' 2(!3.!&4' &.!4'7/*.3' </!4' CR' ' /,' &' (*37*-.&<;*' ,&6!;5' !4' ' 7&!4' ,.*(' &' (2*./(!-&;' &41' ;*>&;' *10"%-&.!/4' 2*' ,!(3.' 7(&-.!3*1' &3' &4' &1=/-&.*' 1!3-2&(>*1' .2*' 10.!*3' /,' & ' -!=!;' &41' -(!6!4&;'K01>*'!4' 7&!4' 2*;1'&'2!>2' 6!;!.&(5' &77/!4.6*4.' &.' -/0(.' &41' !4' ;&.*(' 5*&(3' (*.!(*1' ./' &' 6/4&3.*(5' A2*(*' 2*' 1*=/.*1' 2!63*;,' ./' A(!.!4>' 3&-(*1' 7/*63' &41' 1!*1' &</0.' C$N' ' *' 70<;!32*1' &' -/;;*-.!/4' %/,' 2!3' 3&-(*1' 7/*63' !4' CNV' ' 2*5' &(*' G-/67/3*1' A!.2' (2*./(!-&;' 3D!;;' !4' *7!-' &41' ;5(!-' 6*.(*3' 8!4' .2*' ;&..*(' /,' A2!-2' /(&-*' !4' 2!3' 6/1*;9" &41' .2*5' !4-;01*' 30<K*-.3' %/,' .2*' 6/3.' =&(!*1' D!41'W 5643',(' 1&!;5' 7(&5*(' #$ (" "' # &' 6&(.5(/"' ;/>5'#, ' (" "9" &' -/4,;!-.' <*.A**4' .2*' =!(.0*3' &41' .2*' =!-*3',/(' .2*' 3/0,' /,' 6&4' *.-

(5.&4*!&' 2*' .*(6' !4' .2*4!&4' ;&A' C/(' &'306' /,' 6/4*5'7&!1' <5' </.2' 7&(.!*3' &.' .2*' -/66*4-*6*4.' /,' &' 7(!=&.*' 30!.' ./' 1*,(&5' .2*' *07*43*' /,' .2*' &-.!/4' 4' &-.!/43',/(' 3063' <*.A**4' $NN' &41' $NNN' ('!.'A&3'.2(**' (# ,/(';&(>*(' 3063' .2!(.5' 2*' 1*,*&.*1' 7&(.5'2&1' ./' 0*,041' .2!3'306' ./' .2*' 30--*33,0,';!.!>&4.' ' 0 !-! ' $ ' 9

(5.!4*!&' &6 ' f8$9g' 45' 70<;!-' 4,,!-*' 2*;1' <5' (/.&.!/4' ,/(' >!=*4' 7*(!/13"B 1' !4' *(/1/.03' =!' ' .2*' -2!*,' -/6F 6&41' ,/(' .2*' 1&5' 2*;1' <5' *&-2' /,' .2*' .*4 *4*(&;3'!4'.0(4' 8@9g' 2*' 7*(!/1' /,' .2!(.5"' =*' /(' .2!(.5"3!0' 1&53' ' &</0.' /4*".*4.2' X/,' .2*' 5*&(' 10(!4>' A2!-2' *&-2' /,' .2*' .*4' (: ' 7(*3!1*1' !4' .0(4' /=*(' .2*' /04-!;' &41' ' 2*' /(1*(' A&3' 1*.*(6!4*1' <5';/.' 2*' 7(*3!1!4>'.(!<*' A&3'(*7(*3*4.*1' <5'!.3' ' A2!' A&3' &77/!4.*1' <5';/.' /' 7(*3!1*',/(' .2*' 1&5' &41' -/0;1' 4/.' 2/;1' ".2!3' /,,!-*' 6/(*' .2&4' /4-*' !4' *&-2' 5*&(' 8 (!3./.;*' $ " "' ' (" ' 9g

(5.!4*!3' 83!4>' : " ' H &' 7(*3!F 1*4.'I9' 2*' 4&6*' !4' =&(!/03' (**D' ,(** .&.*3' ,/(' .2*' 2!>2*3.' /,,!-!&;3' 4' 6&45' .&.*3' *37*-!&;;5' !4' *&(;5' .!6*3' /4*' .A/' /(',!=*' : " ' (0;*1' A!.2' &;6/3.' D!4>;5' 7/A*(' .' .2*43' : " ' A&3' .2*' 4&6*' !/(' .2*' 6*6<*(' /,' &' </15' /,' /,,!-!&;3' A2/' 7(*3!1*1' /=*(' .2&.' </15' A2*4' !.' 2&1' &45' 70<;!-' <03!4*33' ./' .(&43&-.' 2!3' .!.;*' A&3' &;3/' >!=*4' ./' .2*' 7(*3!1*4.3' /,' .2*' " ' & ' &41' /04-!;' fA2/' A!.2' .2*!(' '&.' .2*!(' 2*&1' 7(*3!1*1' /=*(' .2*' /04-!;' &41' ' 10(!4>' .2*' V.2' -*4.0(5' ' (' 4' .2*' C.2' -*4.0(5' .2*' 7(*3!1*4.!&;' 10.!*3' A*(*' .(&43,*((*1' ./' .2*' D < ' &41' .2*!(' ' & ' (!3./.;*' $ " "' ' (" ' CC' 77' $? "C' *1' &4153 9g

(5.J4*06'8 (' " " ' 4' 6&45' (**D' ./A43'&70<;!-'<0!;1!4>' -/43*-(&.*1' ./' *3.!& ' &41' -/4.&!4!4>' .2*' .&.*' 2*&(.2' .' .2*43'!.' A&3' 2*(*' .2&.' .2*' .&.*' /,,*(*1' 2/37!.&<;*' *4.*(.&!4 6*4.' &3' &70<;!-' -/67;!6*4.' ./,/(*!>4' &6<&33&1/(3' ./' .2*4!&4' *4=/53' /4' .2*!(' (*.0(4',(/6' .2*' 30--*33,0,' 1!3-2&(>*' /,' .2*!(' 6!33!/4' &;3/' ./' -!.!Q*43' A2/' <&1'1/4*>//1' 3*(=!-*' ./' .2*' .&.*' *37*-!&;;5' ./' 1!3.!4>0!32*X *4*(&;3' &41' =!-./(3' !4' .2*' >(*&.' &4' *;;*4!-' >&6*3' &41' 3/6*.!6*3' *=*4' .!' .2*!(' 1*3-*41&4.3' 4' .2*' -&3*' /,' .2/3' A2/' A*(*' .2*4!&4' -!.!Q*43' .2!3' 7(!=!;*>!' A&3' 030&;;5'>(&4.*1',/(';!,*

G 3J6J.2*' ' 1&0>2.*(' /,' &' D!4>' /' (>/3'6/.2*(' /,' !403' & ' <5' 7/;;/

3 72!36&' 2*' (**D'&41'*37*-!&;;5'.2!' .2*4!&4'.*(6',/(' &(*3/;0.!/4'/,'.2*' 7*/7;!' &((!=*1'&.'<5'=/.!4>' & ' ((' $9

f 3*0111!7.*(13'8H,&;3*;5'1!7.*(&;I9' !' *7!.2*.' 1*3-(!<!4>' &' .*67;*' A2!-2' !3' 30(' (/041*1' /4' &;,/(' 3!1*3' <5' /4;5' &' 3!4>2' (/A' /,' -/;0643' 7;&-*1' &.' !4.*(=&;3' A2!-;' -/((*37/41'./' .2*' 7/3!.!/4',' .2*' /0.*(' (/=' /,' -/;0643' !4' &' 1!7.*(&;' .*67;*' & ' &,!>'?9

3*0117 (!7. (/3' 8H,&;3*;5' 7*(!7.*(&;' 9 4' *7!.2*.' /,' &' .*67;*' !4' A2!-2' .2*' 3!1' -/;0643' A*(*' H' *4>&>*1' I' !4' .2*' A&;;' /,' .28' '!43.*&1' /,' 3.&41!4>' /0.' &.' &' 1!3.&4-' ,(/6'!.' &'

35-2*' 4' (**D' 65.2/;/>5' .2*' 7*(F 3/4!,!-&.!/4' /,' .2*' 206&4'3/0;' &3' .2*' <*!4>' <*;/=*1' <5',!(/3' & ' 2*' !3' (*7(*F 3*4.*1'&3'&<0..*(,;5'3'A!4>3'3/6*.!6*3'&3'70(F 30*1'<5' (/3'!4'=&(!/03'A&5B3'/(' (*=*4>!4>' 2*(3*;,' /4' 2!6' /(' .6!.*1'A!.2'2!6' !4' .2*' .*41*(*3.';/=*' 7.!*;*03' & ' !4' 2!3' .&;*' /,' .2*' 6 ' W ' !=' @R"=!' @Cg' 2&3' &=&!;*1' 2!63*;,' /,' .2!3' (*7(*3*4.&.!/4' *' 6&D*3' .2*6' .2*' 2*(/'&41'2*(/!4*' /,' &4' /;1' 7/70;&(' .(&1!.!/4' !4' A2!-2' &' ;/=!4>' -/07;*' &,.*(' &' 3/((/A,0;'3*7&(&.!/4' &(*' (*3./(*1' ./' /4*' &4/.2*(' ,/(' *=*(' 2*' ;/=*">/1' -&03*3' .2*' -2&(6!4>' 35-2*' .2*' 5/04>*3.' /,' .2*' .2(**' 1&0>2.*(3' /,' &' D!4>' ./' <*' -&((!*1' /,,

<5 L 7;!5(03 ./ & 3*-;01*1 37/. A2*(* 2* =!3!.3 2*(&. 4!>2.&;/4* A!.2/0. <*!4> 3**4 /((*-/>4!3*1 <5 2*(*(30&1*1 <5 2*(3!3.*(3 32* .(&43>(*33*3 2!3 -/6 6&41 &41 A!32*3 ./ 3** 2!6 A2*4 .2* >/1 !6 6*1!&.*;5 =&4!32*3 6 !1 !440 6*(&<;* .(/0<;*3 &41 &77&;;!4> .(!&;3 32* 3**D3 2*(;/=*(.!;; &. ;*4>.2 70(!,!*1 <5 .2* 30,,*(!4>3 32* 2&3 *410(*1 32* ,!413 2!6 &>&!4 &41 !3 4!.*1 ./ 2!6 ,/(*=*(4 .2* 65.2 &3 ./;1 <5 70;*!03 2*(1&0>2.*(!3 -&;;*1 = 35-216&4.*!/4 > ?! >A . > &4 >" .!: / "/ # + 35-2?7/67?3 2* >0!1*(/, /0;3 &4/.2*(4&6* ,/(*(6*3 .?(?$&03 ^!4>/, .2* &72!!&41 *; < &* !4 -&6&4!& * A&3 D!;;*1 <5 2!3 1&0>2.*(6&*.2/ A2/ 70;;*1 /0. .2* >/;1*4 2&!(/4 .2* 7/33*33!/4 /, A2!-2 1*7*41*1 .2* !6 6/(.&;!.5 &--/(1*1 2!6 <5 3*!1/4 # (.1!&63*03 8$, :' -&;;*1 PH 3&=!/0(I /(H 7(*3*(=*(I9 3/4 /, &>03 </(4 ?? >*4*(&; /, ;*0&41*(.2* (*&. &,.*(A2/3* 1*&.2 8 @ 2* (*-*!=*1 >57. &3 2!3 7(/=!4-* *. //D .2* (/5&; .!.;* !4 N? 4 .2* ;&3. 5*&(3 /, 2!3 (0;* 2* ,/041*1 .2* ,&6/03 03*06 &41 .2* >(*&. !<(&(5 /, ;*0&41(!& &41 &..(&-.*1 .2!.2*(&;; .2* ,/(*6/3. 7/*.3 &41 3-2/;&(3 /, .2* .!6* * 1!*1 !4 @R 2!;* 2* A&3 /4 .2* .2(/4* 2* A(/.* & 2!3./(5 /, ;*OF &41*(.2* (*&. A2!-2 A&3 4/.*A/(.2K(,/(!.3 &--0(&-5 6/(* *37*-!&;;5 !4 6!;!.&(5 1*.&!; &41 ,/(!.3 &=/!1&4-* /, *0&>>*(&F .!/4 6/4> .2* A/(D3 /4 ;*.&41*(!./ ./!D .2* ,!(3.7;&-* 4;5 -/67&(&.!=*;5 32/(. ,(&>6*4.3 /, !.2&=* <**4 7!"*3*(=*1 *0. ./ (!3. < ;03 2* !3 .2* 7(!4-!7&; &0.2/(!.5 ,/(((!&4 3 8@ $, ,&6/03 (**D 6&.2*6&.!-!&4 &3.(/4/6*(&41 >*/F >(&72*(* -&6* ,(/6 .?;?6& 3 *(" 6*!/0 f6!43 &. 6/1*(4 " [!4 77*(>57. &41 ;!=*1 &41 A/(D*1 !4 .2* @41 -*4.0(5 $ 2* 6/3.!67/(.&4./, 2!3 A(!.!4>3 A2!-2 2&=* <**4 7*(3*(=*1 &(* 8 !43.(0-F .!/43 ,/(.2* 1(&A!4> /, 6&73 I9 & >*/F >(&72!-&; A/(D !4 *!>2. </!D3 .2* ,!(3./, A2!-2 -/4.&!43 .2* 7(!4-!7;*3 /, 6&.2*F 6&.!-&; >*/>(&725 &41 .2* 1(&A!4> /, 6&73 &41 .2* -&;-0;&.!/4 /, .2* ;/4>!.01*3 &41 ;&.!.01*3 /, 7;&-*3 !4 .2* .2*4 D4/A4 A/(;1 !!"=!! -/4.&!4 .&<;*3 /, 4&6*3 /, 7;&-*3 !4 .2* 6&73 1*3-(!<*1 &((&4>*1 &--/(1!4> ./ 1*>(**3 &41 .2*!(30<1!=!F 3!/43 =!!! -/4.&!43 &4 &3.(/4/6!-&; .&<;* /, -;!6&.*3 2!3 A/(D !3 /4* /, .2* -2!*, 3/0(-*3 /, /0(D4/A;*1>* /, &4-!*4. >*/B&725 8?9 !3 7(!4-!7&; &3.(/4/6!-&; &41 6&.2*F 6&.!-&; A/(D !4 .2!(.**4 </!D3 !3 -&;;*1 .2* 6 : " - : &;3/ D4/A4 &3 .2* 1 8,(/6 .2* (&<!&4 .(&43;&F .!/4 + 1 (.2(/0>2 A2!-2 !. ,!(3.<*-&6* D4/A4 ./ .2* *3.*(4 A/(;19 2!3 >!=*3 8A!.2 -/((*-.!/439 & 306 6&(5 /, .2* (*3*&(-2*3 /, .2* *&(;!*(&3.(/4/6* 3 &41 1*3-(!<*3 .2* ./;*6&!-353.*6 /, .2* 04!=*(3 A!.2 .2* *&(.2 &3 & ,!0*1 -*4.(* .2* 53.*6 A2!-2 A&3 4/. 307*(3*1*1 .!;; .2* .!6* /, /7*(4!-03 8$CU "$VC 9 8-9 2* " !4 .2(**<//D3 4*0. "./ .2&. /, (!3./B*403 .2* 6/3. !67/(.&4. A/(D /4 &4-!*4. 603!- , 2!3 (*6&!4!4> A/(D3 A* 6&5 6*4.!/4 .2* $ " " 1 & ,(&>6*4. /, 2!3 -2(/4/;>!-&; .&<;*3 -&;F -0;&.!4>! 4 >57.!&4 5*&(3 .2* 10(&.!/4 /, .2* (*!>4 /, ,!,.5",!=* D!4>3 .A*4.5 &<5F ;/4!&43 &,.*(&</4&33&(8UCU □ + .*4 *(3!&43 .2!(.**4 ./;*6!*3 &41 .2* /6&4 *67*(/(3 1/A4 ./ 4./4!403 ;03 B<;;-&4! 2* /6&43 >&=* .2!3 4&6* ./ .2/3* A2/ 1!1 <03!4*33 A!.2 .2* .&.* <5 <*-/6!4> -/4.(&-./(3 ,/(70<;!-* <0!;1F !4>3 &41 ,/(3077;!*3 &41 ./ ,&(6*(3 /, 70<F ;!-* ;&413 *37*-!&;;5 .2/3* A2/ ,&(6*1 .2* 70<;!-* .&0*3 # 1 ,/(&* -*(.&!4 .!6* /4 7&56*4. /, & ,!0*1 306 4 /6*(&3 !41**1 .2(/0>2/0. .2* &4-!*4. A/(;1 & .2* -/;;*-.!/4 /, .&0*3 A&3 6&1* 4/.<5 7&!1 /,,!-!&;3 <0. <5 ,&(6*(3 /, .&0*3 A2/ <*;/4>*1 ./ .2* *:0*3.(!&4 /(1*(&3 .2* 3*4&./(3 A*(* *0-;01*1 ,/6 30-2 <03!F 4*33 2* ,&(6*(3 /, .&0*3 <5 .2* !6F 6*43* 7(/,!.3 A2!-2 .2*5 6&1* <*-&6* & 7/;!.!-&;;5 7/A*(,0 -;&33 / -&7!.&;!3.3 3 .2* =&(!/03 .&0*3 !4 .2* 1!,,*(*4.7(/F =!4-*3 A*(* ;*. /0. &3 & A2/;* <5 .2* -*43/(3 K/!4."3./-D -/67&4!*3 A*(* ,/(6*1 " A2/3* 6*6<*(3 (*-*!=*1 &7(/7/(.!/4&.* (*.0(4 ,/(.2*!(!4F =*3.*1 -&7!.&; 4* 6*6<*(.2* " 6&1* & .*41*(&. .2* 70<;!-* &0-.!/4 -/4F -;01* .2* -/4.(&-. A!.2 .2* -*43/(3 &41 >&=* .2* 4*-*33&(5 3*-0(!.5 2* 10(&.!/4 /, .2* -/4.(&-. A&3 & ! * .2* 7*(!/1 <*.A**4 /4* -*43/(32!7 &41 &4/.2*(!4 !67*(!&; .!6*3 &;&53 ,!=* 5*&(3 !. <*>&4 / .2* $V.2 /, &(-2 2* >*4*(&; 307*(!4.*41*4-* A&3 >!=*4 ./ & 1 !4 /6* A2/ =&-&.*1 /, ,!-* *.*(5 5*&(.2* 6&4&>*6*4. /, 1*.&!;3 A&3 !4 .2* 2&413 /, 406*(/03 /, ,!-!&;3 --/(1!4> ./ .2* &6/04. /, .2* .&0*3 ,&(6*1 .2* & " (*-*!=*1 37*-!&;

4&6*3' 2*' 2!>2*3.' -;&33' "')' A*(*' .;!*' ,&(6*(3' /,' .2*' .2*' .*4.2' 7&(.' /,' .2*' 7(/10-*' /,' .2*' &>(!-0;.0(&,' ;&413' A2!-2' 2&1' <**4' .&D*4' ,(/6' .2*' /;1' 7/33*3F 3/(3' 2*' /(' A*(*' .2*' ,&(6*(3' /,' .2*' .2*' .&0' ;*=!*1' ,/(' .2*' 03*' /,' .2*' .&.*' 7&3.0(*3' 2*' " ' - A*(*' .2*' ,&(6*(3' /,' (' .2*'!67/(.'&41' *07/(.'10*3' *.-' 4'/(1*(' ./' 6&D*' .2*' >(*&.*3.'7/33!<;*' >&!4' (' ('A*(*' >0!;.5'/,' .2*' 6/3.' >(!*=/03'/77(*33!/4'/,' .2*'7(/=!4-!&;3'A2/3*' /4;5'2/7*'/,' (*;!*,';&5'!4' .2*' >/=*(4/(' A2/' A&3' (&(*;5'&<;*' ./' 2*;7' .2*6',/(',*&(' /,' .2*3*'!4,;0*4.!&;'3/-!*.!*3' 41*(' .2*' 6F 7!(*' .2*' 7/3!.!/4' /,' .2*' 7(/=!4-!&;3' A&3' !67(/=*1',/(' .2*' *67*(/('&3' .2*' >/=*(4/('' !4"-2!*,' /,'&;,' .2*' 7(/=!4-*3' 2*&(1' .2*',!4&;' &77*&,' !4' .2*' -&3*' /,' &45' >(!*=&4-*3' 4' !67*(!&,' .!6*3' .2*' "' -*&3*1' ./' *0!3.' &41' .2*';*..!4>' /0.' /,' .&0*3' A&3' *4F .(03.*1' ./' .2*' /,,!-!&,'</&(13' 37*-!&;;5'-/4F -*(4*1' A!.2' .2*6

0<;!;!03' 5(03' # ' H .2*' 5(!&4!9' ' /6&4' A(!.*(' /,' 6!6*3'83**' 0 & '&'5/04F >*(' -/4.*67/(&(5'&41' (!=&;' /,' ,.<>(!03' 2*' ,;/0(!32*1' &</0.' C ' -' (/<&<;5'</(4'&.' 4.!/-2'!4' 5(!&'2*' -&6*' ./' /6!'!4' *&(;5' 5/0.2'&3'&3;&=*' 4'&--/04.' /,' 2!3'A!.' 2*' A&3' ;!<*(&.*1' <5' 2!3' 6&3.*(' &41' (*-*!=*1' &'-&(*,0;'*10-&.!/4' 3'&'A(!.*(' /,' 6!6*3' &41' &3' &4' !67(/=!3*(' 2*' A&3' *0-**1!4>;5' 7/70;&(' &41' &,.*(' .2*' 1*&.2' /,' &<*(!03' 2*;1' 3/;*' 3A&5' /4' .2*' 3.&>*' !3' 6!6*3' -/4.&!4*1'!4'&11!.!/4'./'.2*',&(-!-&;'206/0(' /,' .2!3' 3/(.' /,' A(!.!4>' &' >(*&.' 406<*(' /,' 32/(.' A!..5'3&5!4>3' 2*3*' A*(*' 3/' 60-2' &16!(*1'.2&.'.2*5'A*(*'*0-*(7.*1'&.'&4'*&(;5' 1&.*' &41' 03*1'!4' 3-2//;3' A2!;*' .2*' 7!*-*3' .2*63*;=*3'A*(*'3//4',/(>/..*4

4' .2*' !11;*' >*3' .2*3*' 3&5!4>3'A*(*' 7/70;&(' 04*(' .2*' 4&6*' /,' *4*- ' *' 2&=*' &4' &;72&<*.!-&;'-/;;*-.!/4'/,'4*&(;5'.A/' 2041(*1'/,' .2*3*' &7/72.2*>63'<*&(!4>'.2*' .!.;*' , (' : ' " ' " " ' W 1' H' *-*33*' *3.' 60;./3' .!6*&.' :0*(4' 60;.!' .!6*4.'I' H' *4*,!-!06' &--!7*(*';!<*(.&.*6' *3.' =*41*(*'I' &41' 8.2*' 6/../' /,' .2*' 9 " 1(' 7 @' P' 41*0' 1&64&.0(' -06' 4/-*43' &<3/;=!.0(

21!-!.!J' 2*' /6&4' >/11*33' /,' 6/1*3.5'&41'-2&3.!.5' 2*' A&3' &.',!(3.'A/(F 32!77*1'!4' &' -2&7*;'!4' /6*' *0-;03!=*;5'<5' .2*' 7&.(!-!&4' 6&.(/43' 2*4' !4' @T?' ' .2*' 7&.(!-!&4' *(>!4!&'A&3'*0-;01*1',(/6'.2!3' A/(32!7' <5' 2*(' 6&((!&>*' A!.2' .2*' 7;*<*!&4' -/430;' ;064!03' 32*' *(*-.*1' !4' 2*(' /A4' 2/03*' &' -2&7*;' ./' .2*' >/11*33' 3/' .2&.' .2*' 7;*<*!&4' 6&.(/43' 6!>2.' A/(32!7' .2*(*

,.*(A&(13' .2K3' -0;.' 1!*1' /0.' A!.2' .2*' 1*-&5'/,' 6/(&;3' 4'!67*(!&;' .!6*3'&;.&(3' A*(*'*(*-.*1'./' 01!-!.!&' !4' 2/4/0(' /,' .2*' *67(*33*3' 2*' >/11*33' A&3' (*7(*3*4.*1' &3' &' 1(&7*1' 6&.(/4' -/4-*&;!4>' 2*(' (!>2.' 2&41'!4'2*(' >&(6*4.

4;7;.46' 2*' 3.&>*' /,' .2*' /6&4' .2*&.(*' #' /

&(7.;(J' 2*' ,!4*3.' &41' 6/3.' -/3.;5' 15*' /,' .2*' &4-!*4.3' &' 1!3-/=*(5' /,' .2*' 2/*4!-!&43" &;(*&15'D4/A4'./' .2*' (**D3' !4'.2*' /6*(!-'&>*' f 2!3'6&5'<*' !4,*((*1' ,(/6' .2*' ,(*:0*4.' *7!.2*.' (: ' &7F 7;!*1' ./' (/<*3' (0>3' *.-g' .' A&3' &;3/' D4/A4'./'.2*' \B6&43'!4'.2*'.!6*' /,' .2*!(' D!4>3' .' A&3' /<.&!4*1',(/6'.A/' D!413' /,' 32*;;3' !4' .2*' *1!.*((&4*&4' *&M' 8$9' ,(/6' .2*' .(067*."32*;;' 8 (' :-*' &.' " ' -' #O ")' ' [2(' 8@9' ,(/6' .2*' .(0*' 70(7;*"32*;;' 8 (' 2' (E *' &.' ' 1' WO" -' " ' /(' [' 2*3*' 32*;;3' (B7*-.!=*;5' -/4.&!4*1' !4' &' 1!6!40.!=*' <;&11*(' &' 36&;' :0&4.!.5' /,' 8$9' 3-&(;*,' -/;/0(*1' 8@9' <;&-D' &41' (*1' -/;/0(*1'K0!-*' 2*'K0!-*' -/;;*-.*1',(/6'&' 406<*(' /,' .2*3* 32*;;3'A&3'7;&-*1'!4' 3&;.' f!4'.2*' 7(/7/(.!/4' /,' &</0.'/4*' 7!4.' /,' 3&;.' /' *=*(5'3*=*4.5" ,!=*' 7/0413'&=/!(107/!3'/,'K0!-*g'&41' 2*&.*1' !4' 6*.&;'=*33*;3'<5'.2*' !4.(/10-.!/4'/,'A&(6' =&7/0(3" .2*4' .2*' (&A' 6&.*(!&;' A//;' &41' 3!;D' A&3' 15*1' !4'!.' 2*' <*3.' &41' 1*&(*3.' 70(7;*'A&3'&;A&53'.2*' 2-*4!-!&4'*37*-!&;;5' .2&.'/,' 5(*'&;.2/0>2'!.' A&3' 7(*7&(*1'<5' .2*(' !42&<!.&4.3' /,' .2*' *1!.*((&4*&4' 3'.2*' -/;/0(' /,' .2*' " 'A&3'4/.';&3.F !4>'!.'A&3'4/.'03*1'<5'!.3*;,' <0.' /4;5'!4' -/6<!4&.!/4' A!.2' .2*' .(0*' ' ,/(' 7(/10-!4>' -*(.&!4'=&(!*.!*3' /,' 70(7;*' 15*' 5'6!O!4>' -"2:E' A!.2' <;&-D' / 1) ' .2*' K0!-*' /,' .2*' .(0*' 70(7;*"32*;;' .2*' ,&32!/4&<;*' =!/;*.' -&;;*1' .2*' H'&6*.253.'I' 70(7;*' A&3'7(/10-*1"&41'<5'&'1/0<;*'7(/F -*33'/,'15*!4>'',!(3.!4'2&;,"</!;*1' 1(' &41' .2*4' !4' " 5(!&4' 70(7;*' A&3' 7(/10-*1' 2!3' 2&1' .2*' -/;/0(' /,' -;/..*1' <;//1' &41' A2*4' ;//D*1' &.' 3.(&!>2.' &7F 7*&(*1' <;&-D' A2*4' 2*;1' ./' .2*' ;!>2.' !.' >;/A*1' A!.2' -/;/0(' 7/041' /,' =!/;*.' A//;' -/3.' !4' 3*3&(3' .!6*' $NN' " ' 8EC' ' 5(!&4' 70(7;*' A//;' &</=*' $NNN' " ' 8EC' ; 39' 5' 6!O!4>' 1 ' A!.2'/.2*(' 6&..*(' A&.*(' 0(!4*' &41' /(-2! &' .2*' <(!>2.' 70(7;*' 15*3' 2*;!/.(/7*"<;0*' 6&0=*"<;0*' &41' =!/;*."5*;;/A' A*(*' /<F .&!4*1' .2*(' -/;/0(3' A*(*"7(/10-*1' <5' .2*' -/6<!4&.!/4'/,' .2*' 1!,,*(*4.' 6*.2/13' /,' 15*!4>',!(3.' 15*!4>' .2*' 6&.*(!&;' A!.2' =!/;*.' -/;/0(' 70(7;*' 15*' &41' 3-&(;*.' 87(/"

duced by *kermes* [from the *coccus ilicis*]; then by using the Tyrian method, they obtained the *tyrianthinum*, the Tyrian shell-purple, and the variety called the *hysginum* [from Gr. *hysgē*=a variety of *prinos*, or *quercus coccifera*. (Pliny, *N.H.* ix 124–141.) For further details, see Blümner's *Technologie*, i 224–240].

Purple robes were used at an early date by the Greeks as a mark of dignity. Even the Athenian archons wore purple mantles officially. In Rome at one time broad, at another narrow, stripes of purple on the *toga* and tunic served as marks of distinction for senators, magistrates, and members of the equestrian order. The robes of the general were dyed in purple (*see* PALUDAMENTUM); so also was the gold-embroidered mantle worn by one who celebrated a triumph. For a long time home-purple was used; Tyrian purple was not introduced till the middle of the 1st century B.C., and from that time it became a luxury. In spite of repeated attempts to check by imperial decrees the use of real purple among private individuals, robes trimmed with purple, or altogether dyed with it, became more and more used. Only a complete robe of *blatta*, the finest kind of purple, of which there were five varieties, was reserved as an imperial privilege, and any private persons who wore it were punished as being guilty of high treason. [*Codex Theodosianus* iv 40, 1: *purpura quæ blatta vel oxyblatta vel hyacinthina dicitur.*] From the 2nd century A.D. the emperors took part in this lucrative industry, and from the end of the 4th century A.D. the manufacture of the *blatta* became an imperial monopoly.

Pŭtĕāl. The Latin term for a circular stone inclosure, consisting of a dwarf wall, surrounding either (1) the mouth of a well, or (2) a spot struck by lightning. Italian superstition demanded that every flash of lightning which struck and was buried in the earth should have, as it were, a grave and a propitiatory offering, as in the case of a human being. According to the place where the flash fell, this offering was made, either by the State or by private individuals, in the earlier times according to the directions of the *pontifices*, at a later date after consultation with the Etruscan *haruspices*. The earth which was touched by the divine fire was carefully collected [Lucan i 606], and inclosed in a coffin constructed out of four side-pieces and without any bottom (this was the burying of the lightning). Then round the coffin a shaft, consisting of four walls and open at the top, was built up to the surface of the ground. A place which had thus been consecrated by the offering which the *haruspices* made of a sheep two years old (*bidens*) was specially called a *bidental*, and was not allowed to be desecrated. According to the pontifical rite introduced by Numa, the propitiatory offering consisted of onions, hair, and sardels. If a human being had been struck by lightning, his body was not burnt, but buried on the spot [Pliny, *N. H.* ii 145]. Such a spot was called a *bidental*, and a propitiatory offering was made on his behalf [Festus, p. 27; Nonius, pp. 53, 26].

* PUTEAL.
(On a denarius of L. Scribonius Libo.)

[The *puteal*, with bay wreaths, lyres, and a pair of pincers, may be seen on coins of the *gens Scribonia* (*see* cut). The ancient *puteal* in the Forum, near the *Arcus Fabianus*, was repaired by Scribonius Libo, whence it was called the *Puteal Libonis* or *Puteal Scriboniānum*. In its neighbourhood he erected a tribunal for the prætor, which led to its becoming the resort of litigants, money-lenders, etc. (Hor., *Sat.* ii 6, 35, *Ep.* i 19, 8; Cic., *Pro Sestio* 18).]

Pŭtĕus. The fountain in a Roman house. (*See* HOUSE.)

Pyănĕpsĭă. A festival celebrated at Athens on the seventh day of *Pyanepsion*, the end of October, in honour of the departing god of summer, Apollo. The festival received its name from the cooked beans which were offered to the god as firstfruits of autumn. Another firstfruit offering of this festival was the *Eiresione*, a branch of olive or bay, bound with purple and white wool, and hung about with all sorts of autumn fruits, pastry, and small vessels full of honey, wine, and oil. This branch was borne by a boy whose parents were both alive; a song, which bore the same name *Eiresione*, was sung, while he was escorted by a procession to the temple of the god, where the wreath was deposited as a votive offering. Other branches were hung at the doors of the houses. In later times this festival was also kept as a mark of gratitude for the safe return of Theseus from Crete, which was supposed to have taken place on this day; and the cooking of the beans was regarded as commemorating the cooking of the scanty remains of the provisions of

2*' 1!*1' 3//4'&,.*(A&(13' 8VNC9' 5.2&>/(&3' 2&3' ;*,.' 4/.2!4>' /,' 2!3' .*&-2!4>' !4' &' A(!. ' .*4' ,/(6 ' 2*' 6 "' : "1 ' A2!-2' <*&(' 2!3' 4&6*' &(*' -*(.&!4;5' 4/.' >*44!4*' .2*4>2' .2*5' 6&5' 2&=*' /(!>!4&.*1' &.' &4' *&(;5' 1&.*' 2*5' -/43!3.' /,'3*=*4.5"/4*' 6&0!63' A(!..*4' !4' 2*O&6*.*(3' A!.2' ;!..;*' ./' -/66*41' .2*6' 7/*.(5 .',/;;/A3' .2*4' .2&.' .2*(*' !3' &3' 60-2' 04F -*(.&!4.5'&</0.' 2*' 353.*6'/,' 5.2&>/(&3' &3' 0</0.' 2!3';!,*',/('!.'!3'!67/33!<;*' ./'&3-*(.&!4' GA2!-2' /,' .2*' 7(*-*7.3' /,' .2*' 5.2&>/(*&4' 3-2//;' &(*' 10*' ./' 2!63*;,' &41' A2!-2' &(*' ;&.*(' &11!.!/43' <5' 2!3' 1!3-!7;*3' *' -&4' %/4;5' &3-(!<*' ./' 2!6' A!.2' -*(.&!4.5' .2*' 1/-.(!4*' 8$9' /,' .2*' .(&436!>(&.!/4' /,' 3/0;3' &41' 8@9' /,' 406<*(' &3' .2*' 7(!4-!7;*' /,' .2*' 2&(6/45' /,' .2*' 04!=*(3*' &41' /,' 6/(&;'!,*' &41' ,0(.2*(' -*(.&!4' (*;!>!/03' &41' 6/(&;' 7(*-*7.3' 2*',!(3.'1!3-!7;*' /,' 5.2&>/(&3' A2/' 1*3-(!<*1' 2!3'72!;/3/72!-&;' 353.*6'!4' A(!.!4>' A&3' ,(' *!.2*(' /,' (/./4' /(' &(*4.06' &' -/4.*67/(&(5' /,' /-(&.*3' 8&</0.'C N' 9' ,'.2!3'1/-06*4.' A2!-2' A&3'A(!..*4' !4' .2*' /(!-'1!&;*-.' A*' 7/33*33' /4;5' &',*A',(&>6*4.3' (: ' /,' &(*4*' .06' A&3' &4/.2*(' !67/(.&4.',/;;/A*(' /,' .2!3' 3-2//;' *' A&3' &',(!*41' /,' ;&./' &41' A&3' 1!3.!4>0!32*1' &3' &' >*4*(&;' 3.&.*36&4' &41' 6&.2*6&.!-!&4' *' ,;/0(!32*1' &</0.' CNN" ?V' <0.' .2*',(&>6*4.3' A2!-2' <*&(' 2!3' 4&6*' &(*' 4/.' >*40!4*' 2*' 3&6*B6&5' <*' 3&!1' /,' .2*' A(!.!4>3' &..(!<0.*1' ./' ' (<" ' &41' ./' +3 ' /, /-(!' $ " " "1' (' > ' ' (' " ' &41' $ " " "1' (' ' /,' .2*' 3*=*4';*..*(3' /,' +(" ' .2*' 3077/3*1' A!,*' /,' 5.2&>/(&3' $ " " "1' (' 9 "' ' $("' . : ' +(' " 1 " ' ' (' (' *.- 8@9' ' 6 ' ' /,' 2*>!06' !4']!/A*(' .&;5' A2/' ,;/0(!32*1' !4' .2*' 3*-/41' 2&;,' /,' .2*' V.2' -*4.0(5' -' *' 1*=/.*1' 2!63*;,' *0-;03!=*;5' ./' A/(D!4>' !4' <(/4Q*' !3' ,&=/0(!.*' 30<K*-.3' A*(*' 3.&.0*3' /,' 2*(/*3' &41' /,' .2*' =!-./(3' !4' &.2;*.!-' >&6*3' .(!=!4>' &,.*(' &4' *0&-.'!6!.&.!/4' /,' 4&.0(*' 2*' !3' 3&!1' ./' 2&=*' <**4' .2*',!(3.'./' *07(*33' .2*' 3!4*A3' &41' =*!43' *' &;3/' (*41*(*1' .2*' 2&!(' /,' .2*' 2*&1' 6/(*' -&(*,0;;5' .2&4' 2!3' 7(*1*-*33/(3' &41' !4' .2*' 7/3*' /,' 2!3' 3.&.0*3' 7&!1' 37*-!&;'&..*4./4' ./'3566*.(5' &41' (25.26' f ;!45' >' ' 000!=' VT' =!! $V@" &03&4!&3' =!' C' ' ?' ' ! ' ?' ' C U $ $N' $R' ` $ g 5. &' 8$9' 2*' 7(/72*.*33' /,' 7/;;/' &.' *;72!' # ' ? (' N .!E9 8@9' +(' , : (" ' 1 ' *0.' ./' .2*' ;567!-' >&6*3' .2*' 6/3.' !67/(.&4.' /,' .2*' ,/0(' (**D' 4&.!/4&;' ,*3.!=&;3' K /6' VR?' -' .2*5' A*(*' 2*;1' /4' .2*' (!333*&4' 7;&!4' <*;/A' *;72!' 2*5'.//D'7;&-*' /4-*' !4',/0(' 5*&(3' !4' .2*' .2!(1' 5*&(' /,' *&-2' ;567!&1' !4' .2*' *;72!-' 6/4.2' ,;-.!03'8.2*' 611;*' /,' 0>03.9' *,/(*' .2!3' .!6*' 8VR?' ' (' .2*(*' 03*1' ./' .&D*' 7;&-*' &.' *;72!' !.3*;,' /4-*' !4' *!B.' : ' &' >(*&.' ,*3.!=&;' !4' 2/4/0(' /,' 7/;;/' !4' A2!-2' .2*' 6!43.(*;3' =!*1' A!.B' /4*' &4/.2*(' !4' 3!4>!4>' ./' .2*' &--/67&4!6*4.' /,' .2*' (' &' 73*&0' !4' 7(&!3*' /,' .2*' >/1' 041*(' .2*' 1!(*-.!/4' /,' .2*' *;72!-' 7(!*3.3' ,.*(' .2*',!(3.' &-(*1' &(' A2*4' .2*' (!333*&4' 7;&!4' <*F -&6*' .2*' 7(/7*(.5' /,' .2*' 7(!*3.2//1' .2*' 672!-.5/43' !4.(/10-*1',*3.!=&;3' /4-*' !4',/0(' 5*&(3' &.' A2!-2' >5643&3.!-' -/4.*3.3' &41',//."(&-*3' .//D' 7;&-*' &3' A*;;' &3' .2*' -03./6&(5' 603!-&;' -/4.*3.' 2!3' -/4.*3.' &;3/' A&3' ,0(.2*(' 1*=*;/7*1' *3!1*3' 6!43.(*;3' A2/' 3&4>' A!.2' .2*' (' 7;&5*(3' /4' .2*' ;,0.*' &41' 3!4>*(3' ./' &-F -/67&4!6*4.' /,' .2*' ,;0.*' .//D' 7&(.' !4' !.' 8.2*' ;&3."4&6*1' 2/A*=*(' ,/(' &'32/(.' .!6*' /4;59' 2*' >5643&3.!-' &41' &.2;*.!-' -/4F .*3.3' A2!-2' A*(*' 4*&(;5' .2*' 3&6*' &3' .2/3*' 2*;1' &.' ;567!&' 5!*;1*1' !4' 3!>4!,!-&4-*' ./' .2*' 603!-&;' -*(*6/4!*3' &41' /,' .2*3*' .2*' 5.2!&4' "/ / ' A&3' .2*' 6/3.' !67/(.&4.' .' A&3'&-/67/3!.!/4',/(' .2*' ,;0.*' A/(D*1' /0.' /4' &7(*3-(!<*1' -2*6*' &41' -*;*<(&.!4>' .2*' <&..;*' /,' 7/;;/' A!.2' .2*' 1(&>/4' 5.2/4' &41' 2!3' .(!0672' .' ,!(3.' .;H 7(!Q*',/(' .2*' G=!-./(' A&3' /,' 3/6*' 30<3.&' .!&;' =&;0*' <0.' &.' .2*' 3*-/41',*3.!=&;' !.' ./* .2*',/(6' /,' &' A(*&.2',(/6' .2*' 3&-(*1' <M .(**' !4' .2*' &;*' /,' *67/' 2*' =!-.' &;3/' (*-*!=*1' 3!4' .2*' /.2*(' -/4.*3.3' 7&;6"<(&4-2' 2*' K01>*3' A*(*' -2/3*4' $ .2*' 672!-.5/43' 2*' 5.2!&4' ;!D*' .;' ;567!-' >&6*3' A*(*' 7(/<&<;5'4/.' 1!3-/' .!44*1'.!:;'&</0.' TC& " 5.2 4' 6/43.(/03'3*(7*4.' 7(/10-!' <5' 3*&' A2!-2' 2&04.*1' .2*' -&=*3' /,' 3' 4&3303' .' A&3'3;&!4'<5' 7/;;/'A!.2' 2!3',!0 &((/A3' # ' '&41' (' 5 (: S4&1(&43'8_' " ' ' /6&4' -/77*(' XV/!4' &' :0&(.*(' /,' &4' ' OU' " ' & ' V" ' @ 9' 2*' " ' A&3' .2*' 030&; 7(!-*' 7&!1',/(' &' <&.2' f .' A&3' *:0!=&;*' ./' &</0.' 2&;,'&',&(.2!4>g S0&1(!>&'&;' " ' ' -2&(!/.' 1(&A4

four horses, used in battle and in athletic games. (*See* CIRCUS, GAMES OF.) The cut

QUADRIGA.
(Syracusan *decadrachma*.)

represents a *quadriga* with weapons as the prize of victory.

Quadrīgārius. A Roman annalist. (*See* ANNALISTS.)

Quæsītor. The Roman title of the president of an extraordinary or ordinary criminal court (*quæstīō extraordĭnāria* or *perpĕtŭa*). According to Sulla's rules of procedure, six prætors chosen for criminal cases presided, and, when this number was not sufficient, additional judges, *iūdĭcēs quæstiōnis*, were provided.

Quæstīō. The Roman term for a court of inquiry, either *extraordĭnāria*, an extraordinary commission appointed by the senate or people for special criminal cases, or *perpĕtŭa*, an ordinary criminal court for certain defined offences. The first court of this kind was held B.C. 149 to try a case of extortion.

In course of time, by the laws of *Gaius Gracchus* and of *Sulla*, the number of these tribunals was increased. In Cicero's time there were eight ordinary courts to try cases of extortion, high treason (*māiestās*), embezzlement (*pĕcŭlātus*), unlawful canvassing for an office (*ambĭtus*), violence (*vīs*), assassination, poisoning, and forgery. Every *quæstio* had a president (*see* QUÆSITOR), either one of the prætors chosen by lot, or when the number of these was not sufficient, a *iūdex quæstĭōnis*, in addition to a certain number of sworn judges. (*See* JUDEX.)

It was open to any one except to women, infants, and those who were *infāmēs*, to begin a criminal prosecution, even if he himself had not been the party injured. There was no public prosecutor; but the State, by means of pecuniary rewards and conferring of dignities, encouraged the prosecution of criminals. If, however, the accused party was found innocent, it was open to him to prosecute his accuser for chicanery. (*See* CALUMNIA.) The case was begun by the *postŭlātĭo*, a request, with a statement of the crime and name of the accused, for permission to prosecute, made to the prætor at an open sitting in the market-place. If several persons offered themselves as accusers, the choice was made by *dīvīnātĭo* (*q.v.*, 2). But, besides the principal accuser, others were allowed, who signed the indictment, and were therefore called *subscriptōrēs*. When permission had been obtained, there followed the *nōmĭnis dēlātĭo*, the handing in of the indictment; the *rĕceptĭo* and *inscriptĭo*, the reception and entry of the same in the official list by the prætor; the *interrŏgātĭo*, the examination (also by the prætor) of the accused, who was now *rĕus* (*q.v.*). Unless he pleaded guilty, or clearly proved his innocence, the *dĭēi dictĭo*, or date of hearing the case, was fixed, at the earliest in ten days, in special cases not till 100 days later. It was the duty of the complainant to collect in the meantime the necessary evidence and witnesses, and for this purpose he received an official authorization. At the sitting of the court, which was held publicly, by the sworn judges (*cognĭtĭo*), after the judges and parties had been cited, the accuser delivered his accusation in a continuous speech, the *subscriptores* followed him, then the accused and his *pătrōni*. The duration of these speeches (*actĭōnēs*) was at first unlimited, but afterwards, to correct the abuse of this privilege, a water-clock was introduced, which limited the time of each speaker; the time allowed for the defence was about a third greater than that for the accusation. Then followed the proof (*prŏbātĭo*) of the case. For this documents, circumstantial evidence, and declarations of witnesses were used. Next, unless the case was adjourned for the production of further proof (*amplĭātĭo*), or for a new trial on the third day (*compĕrendĭnātĭo*), the votes of the judges on the question of guilt or innocence were taken. The voting was usually in secret. The judges received from the president wooden tablets covered with wax, on the one side inscribed with a C (*condemno*, I condemn), on the other with an A (*absolvo*, I acquit). They erased one of these letters and threw the tablets into an urn. [In cases where they were unable to decide respecting the guilt or innocence of the accused, they could signify the same by writing on the tablet the letters N. L., *non lĭquĕt*.]

The result of the voting was then formally

7(/-;&!6*1 <5 .2 7(*3!1*4. &41 !, 1 ,!4* A&3 !41!-.*1 .2 &6/04. # A&3 .2*4 1*-!1*1 <5 .2 7(*3!1*4. &41 .2* 3A/(4 01>*3 6&4 /4-* &-:0!..*1 -/0;1 4/. <* (*".(!*1 ,/(.2 3&6 * /,,*4-* 04;*33 2!3 &-:0!..&; 2&1 <**7 7(/-0(*1 <5 -/;;03!/4 # 9+ (/, .2 &--03*(2*(* A&3 4/ A&5 /, &;.*(!4> .2 =*(1!-. /, .2* 3A/(4 01>*3 &41 .2 704!32 6*4. A&3 *OF &-.*1 !6 6*1!&.*;5 &,.*(.2 3*4.*4-* 2&1 <**4 >!=*4 , !. A&3 /4 /, 1*>(&1&.!/4 # " /(*O!;*# " 1" O! ;; @9 .2 6&4 3/ 704!32*1 -/0;1 <* (*!43.&.*1 !4 .2 (!>2.3 2 2&1 ,/(,*!.*1 # " 1 2!3 A&3 1/4* <5 &1*-(* /, .2 7*/7;* !4 ;&.*(.!6*3 <5 .2 *67*(/(3 7&(1/4 2*3* -/0(.3 /, 3A/(4 01>*3 ;&3.*1 .!;; .2 <*>!44!4> /, .2 R(1 -*4.0(5 103*3./(3 # ,(/6 ! .2 !4=*3.!>&./(3*&(-2*(9 2 &.!4 .*,(4 /(!>!4&;;5 >!=*4 ./ .A/ /,! -!&;3 -2/3*4 <5 .2 D!4> .2*5 2&1 ./ .(&-D &45 /4 3037*-.*1 *, & -&7!.&; /,,*4-* 4 .2 .!6 * /, .2 *70<;!-. .2*5 7*(,/(6*1 .2 3&6 * /,,!-* ,/(.2 -/430;3 <5 A2/6 .2*5 A*(* -2/3*4 *=*(5 5*&(2*4 .2 &16!4!3.(&.!/4 /, 03.!-* !4 -(!6!4&; -&3*3 -&6 * !.!. .2 2&413 *, .2 " .2 :0&*3./(3 (*-*!=*1 !4 &11!.!/4 ./ .2*!(/;1 7(!=!;*>* /, 7;*&1!4> <5 .2 6&41&.* /, .2 -/430;3 A2!-2 .2*5 ;/3.;&.*(.2 6&4&>*6*4. /, .2 .&.* .(*&30(5 # !4 .2 .*67;* /, &.0(4 2*5 <*-&6 * (*-/>4!3*1 /,,!F -!&;3 A2*4 .2*5 A*(* *;*-.*1 &. .2 041*(.2 7(*3!1*4-5 /, .2 -/430;3 87(/<&<;5 &</0. C!U 9 2 :03*3./(3 2&1 4/(*>0;&(<&1>*3 , /,,!-* 4 C@$ .2*!(%406<*(A&3 1/0<;*1 &41 .2 7;*<*!&43 A*(* >(&4.*1 .2 (!>2. / ,&77/!4.!4> ./ .2 /,,!-* G/ :0&*3./(.2/0>2 .2*5 1!1 4/. *0*(-!3* !. .!;; .A*;=* 5*&(3 ;&.*(2*, /0(:0&*3./(3 32&(*1 .2*!(10.!*3 3/ .2&. A/ / .2 6 &-.*1 &3 6&3.*(3 / .2 .(*&30(5 84&-*3XV+ > &41 (*6&!4*1 !4 .2 -!.5 82*4-* .2*!(4&6* B " A2!;* .2 /.2*(.A/ &--/67&4!*1 .2 -/430;3 /4 -&67&!>43 !4 G/(1*(./ &16!4!3.*(.2 6!;!.&(5 -2*3. .A&3 7>&(. / .2 10.5 / .2 .A /(6*(./ -/;;*-. .2 (*>0;&((*=*40*3 /, .&.* %8.&O*3 &41 -03./6"10*39 &41 .2 *O.(&/(1!4F &(5 (*=*40*3 8,!4*3 ;*=!*3 , /(A&(&41 6/4*5 7(/10-*1 <5 .2 3&;* /, </!.59 ,0(.2*(./ 6&D* 7&56*4.3 A2!-2 6!>2. 4/. <* 6&1* ./ .2 -/430;3 *0-*7. <5 37*-!&; 7*(6!33!/4 / , .2 *4&.* ./ -/4.(/; .2 &--/04.3 / ,!4F -/6* &41 *07*41!.0(* A2!-2 A*(* 6&4&>*1 041*(.2*!((*37/43!<!;!.5 <5 &37*-!&; -;&33 / ,/,,!-!&;3 83-(B69 ./ 6&D* &((&4dd dBd B ,/(70<;!-<0(!&;3 ,/(.2*(*(*-.!4> / ,6/40F 6*4.3 ,/(.2* *4.*(.&!46*4. / ,/(*!>4 &6<&33&1/(3 *.- &. .2* *07*43* / ,.2* .(*&30(5 <!(.2*(.2*5 7(*3*(=*1 &. .2*!(7;&-* / ,<03!4*33 [.2* .*67;* / , &.0(4 [.2* 6!;!.&(5 3.&41&(13 &;3/ .2* ;&A3 .2* 1*-(**3 / , .2* *4&.* 41 .2* &41 D*7. & *63.*(/ ,.2* 3A*&(!4> !4 / , .2* / ,,!-!&;3 A2!-2 .//D 7;&-* .2*(* ,.*(.2* 30<*-.!/4 / , .&;5 ,/0(6/(* :0&*3./(3 A*(* &77/!4.*1 !4 @?U - 2*5 A*(* 3.&.!/4*1 !4 1!,,*(*4. 7&(.3 / , .&;5 &. ,!(3. &. 3.!& &41 (;6;406 7(/<&<;5 ./ 307*(=!3* .2* <0!;1!4> / , ,;**.3 0;;& !4-(*&3*1 .2*!(406<*(./ .A*4.5 .*4 / , A2/6 A*(* &77/!4.*1 !4 .2* 7;&-* / , .2* 7(*=!/03 .A/ ./ &--/67&45 .2* 7(/-/430;3 &41 7(/7(&*./(3 ./ .2* 7(/=!4-*3 .A/ ./ 2*;7 .2* -/430; A2/ (*6&!4*1 !4 .2* -!.5 &41 .A ./ 2*;7 .2* /.2*(.A/ /(!>!4&; :0&*3./(3 &. .2*!(A/(D !4 .2* -!.5 2* :0&*3./(3 *67;/5*1 !4 .2* 7(/=!4-*3 !-!;5 &;/4* 2&1 .A/ /, .2*3* 3.&.!/4*1 &. 5(&F -03* &41 !;5<&*06 (*37*-.!=*;59 A*(* 7(!4-!7&;;5 /--07!*1 A!.2 ,!4&4-* .2*5 6&4&>*1 .2* 7(/=!4-!&; .(*&30(5 &41 1*F ,(&5*1 /0./ /, !. .2* *07*43*3 -C .2* &(65 .2* >/=*(4/(&41 2!3 (*.!40* &45 30(7;03 .2*5 2&1 ./ 7&5 !4 ./ .2* .&.* .(*&30(5 &. /(4* &41 ./ ,0(4!32 &4 *0&-. 3.&.*6*4. / , &--/04.3 2* >/=*(4/(6!>2. &77/!4. .2*6 2!3 1*70.!*3 &41 !, 2* 1!*1 .2*5 &3F 306*1 .2* -/6 6&41 !4 </.2 / .2*3* -&3*3 .2*5 &-.*1 HC ! * &3 7(/7(&*./(3 # &*3&((&!3*1 .2*!(406<*(./ ,/(.5 !4 /(1*(./ <* &<; .2 (*A&(1 & >(*&.*(406<*(/ , 2!3 &12*(*4.3 , /(.2* / , >&= &16!..&4- ./ .2* *4&.* &41 .2* 7/3!.!/4 / , :0&*3./(A&3 ;//D*1 07/4 &3 .2* ,!(3. 3.*7 !4 .2* /,,!-!&; -&(**(2* &>* 1*,!4*1 <5 ;&A A&3 ,(/6 .A*4.5"3*=*4 ./ .2!(.5 5*&(3 2*4 .2* <*>!44!4> / , .2* 6&>!3F .*(!&; 5*&(A&3 ,!O*1 , /(&40&(5 $3. .2* :0&*3./(3 &3306*1 /,,!-* /4 *-*6<*(V.2 /4 A2!-2 1&5 .2* :0&*3./(3 !4 .2* 2 1*-!1*1 <5 ;/. A2&. .2* A/(D / ,*&-2 32/0;1 <* =*4 041*(.2* 67!(* A2*4 .2* 4/(F 6&; 406<*(/ , :0&*3./(3 &3 !4-(*&3*1 ./ .A*4.5 &41 .2* &>* (*10-*1 ./ .A*4.5",!=* .2* /,,!-* / , :0&*3./((*6&!4*1 .2* ,!(3. 3.*7 ./ 2!>2*(7/3!.!/43 !4 .2* .&.* 0. .2* 7/A*(/ , .2* :0&*3./(3 >(/A 6/(* ;!6!F .*1 &3 .2* 6&4&>*6*4. / , .2* (*&30(5 A&3 *4.(03.*1 ./ 37*-!&; 3/ .2&. .2* -!.5 :0&*3./(3 2&1 /4;5 -2&(>* / , .2* &(-2!=*3 ./ A2!-2 .2* 307*(=!3!/4 / , .2* 7&=!4> / , 3.(**.3 A&3 &11*1 ,.*(/ , .2* 7(/=!4-*3 <*.A**4 .2*

707!;3 f 2* 6 /3. (*-*4. *1!./(2/A*=*(8 /43.&4.!4* !..*($RRC9 (*>&(13 .2* >(*&. <0;D /, .2* 6 &3 >*40!4* g

S0!4.03 6563*03 (**D *7!- 7/*. / , 65(4& /A&(13 .2* *41 /, .2* C.2 -*4.0(5 2* -/67/3*1 &<&;1 !6!.&F .!/4 /, /6*(*4.!.;*1 .2* , (!4 ,/0(.**4 <//D3 &-/4.!40&.!/4 /, .2* ' &,.*(.2* 6&4!(* /, .2* -5-;!- *7!- A(!.*(3 ,(/6 .2* 1*&.2 /, *-./(./ .2* 32!7A(*-D /, .2* -2**&43 /4 .2*!(K/0(4*5 2/6*

S0!(!443 2* &<!4* 4&6* /, &(3 &3 .2* >/1 A2/ <(&41!32*1 .2* ;&4-* 8,(/6 &<!4* -Y(.R_ &.!4 .2* ;&4-*9 2* &<!4*3 A/(32!77*1 2!6 041*(.2!3 4&6* &3 .2* ,&.2*(/, .2* ,/041*(/, .2*!(/;1 -&7!.&; $! K03. &3 .2* /6&43 2/4/0(*1 &(3 &3 .2* ,&.2*(/, /6,;;03 2*4 .2* &<!4*3 6!>(&.*1 ./ /6* .2*5 .//D .2* -0; &41 .2* 4&6* /, .2* >/1 /, .2*!((&-* ./ .2*!(4*A &</1* /4 .2*

S0!(!4&; 2!;; 4 .2!3 &5 S0!(!403 .2/0>2 !1*4.!-&; A!.2 &(3 2&1 &!1!3.!4-. &41 3*7&(&.* A/(32!7 /4 .2* 3;/7* /, .2* S0!(!4&; * 7/33*33*1 &.*67;* A!.2 7(!*3.3 # > 313 &41 ;0;;9 &41 &37*-!&; ,*3.!=&; 2*4 !4 .2* -/0(3* /, .!6* .2*!(-/44*O!/4 A&3 ,/(>/..*4 S0!(!40 A&3 !1*4.!,!*1 A!.2 .2* 1*!,!*1 /60;03 .2* 3/4 /, &(3 /(&403 S0!(!403 3)

S0;(;.*3 81*(!=&.!/4 04-*(.&!49 2* 4&6* /, .2* /;1*3.!42&<!.&4.3 /, /6* .2* ;!&.!4 "" &41 .2* &<!4* + .&D*4 ./>*.2*(,.*(A&(13 !.<*-&6* .2* 4&6* /, .2* /6&4 7*/7;* & 7 $ " T @"(/(9 ! !4 2/6* &,!,&!(3 A2!;* 7 " A&3 03*1 !4 -/44*O!/4 A!.2 ,/(*!>4 &,,&!(3 T A&3 &;3/ 03*1 ./ !41!-&.* 7*&-*&<;* -!.!Q*43 /(-!=!;!&43 &3 /77/3*1 ./ 3/;1!*(3 # f &- " " ! C@M 0*. !.; UN 0-&4 = RRg

&-*3 " f " () @ & 5>! / & /(,//.!"&-*3 @*&

(3*1& 8/((/4>;5 37*;. (2* /6&4 .(&=*;;!4>"-&((!&>* A!.2 ,/0(A2**;3 #$ " I

&64*3 4* /, .2* .2(**/;1 7&.(!-!&4 .(!<*3 &. /6* # (

-;.&.;/4*3 . /6*</D3 A*(* 3/6*F .!6*3 (*&1 &;/01 <*,/(* .2*!(70<;!-&.!/4 213 -03./6 A&3 !4.(/10-*1 !4 .2* .!6* /, 0>03.03 <5 3!4;03 /;;;/ .,!(3. .2*3* (*&1!4>3 .//D 7;&-* /4;5 <*,/(* ,(!*413 37*-!&;;5 !4=!.*1 &,.*(A&(13 .2*5 A*(* 70<;!-;5 &44/04-*1 &41 A*(* 2*;1 <*,/(* >(*&. &33*6<;!*3 *!.2*(!4 .2* .2*&.(* /(&. .2* 70<;!-<&.23 /(!4 .2* /(06 &16!3F 3!/4 <*!4>/7*4 ./&;; 4.(/10-*1 !4 .2* ,!(3. !43.&4-* A!.2 & =!*A ./ /<.&!4!4> .2* -(!.!-!363 /, .2* &01!*4-* ./ 2*;7 .2* &0.2/(!4 2!3 ,!4&; (*=!3!/4 /, 2!3 A/(D .2*5 3//4 <*-&6* /, 30-2 !67/(.&4-* .2&. .2*5 1*.*(6!4*1 .2* 0--*33 /, .2* A/(D 3/ (*-!.*1 .2* .2* 3&6* .!6* 3*-/41"(&. .&;*4 .A&3 /, .*4 <;!41*1 ./!.3!67*(,*-.!/43 <5 .2* *O&>>*(&.*1 &77;&03* /, & -;!:0* 4 .2* .!6* /, .2* 5/04>*(;!45 .2*3* (*-!.&./!43 A*(* 3/ 64-2 !4 ,&32!/4 .2&. f!4 .2* 7(!;, /, &7&(.!-0;&(5*&(g 2&(1;5 & 1&5 7&33*1 A!.2/0. /4* W.9 ! $ ` $ 7 !0U ` V " $R C " =;U ` C " =!!U " 0=*4&; ! " !!! T " =!! UN A!.2 &5/(3

4/.*g 2*5 **6 ./ 2&=* /4.!40*1 .!;; .2* ?.2 -*4.0(5

?-/>4!.!1 /, .2* /6&4 D4!>2.3 [%

R-J7?(&.1(3 2* /6&4 .*(6 , /(& 3A/(4 -/66!..** /(</&(1 /, .2(** ./ ,!=* 6*6<*(3 -/4=*4*1 <5 .2* 7(6./(0-2 &</&(1 2&1 ./ &1K01!-&.*&. /6* &41 !4 .2* 7(/=!4-*3 !4 6/4*5 -&3*3 8 6/(* *37*-!&;;5 /4 -;&!6 3 , /(-/67*43&.!/4 &41 1&6&>*39 .,!(3. /4;5 -&3*3 <*.A**4 /6&43 &41 ,/(*!>4*(3 A*(* 2*&(1 !4 .2* A&5 &41 A*(* 3*..;*1 A!.2!4 .*4 1&53 ,.*(A&(13 &</&(1 /, .2!3 D!41 1*-!1*1 /4 &;; ;*>&; 7/!4.3 A2!-2 2&1 ./ <* 3*..;*1 7(/67.;5 ;>!,.!>;06 /6&4 ,*3.!=&; -*;*F <(&.*1 /4 *< @C.2 ./ -/66*6/(&.* .2* *070;3!/4 /, .2* D!4>3 .2!3 ,*3.!=&; .2* - /,,*(1 3&-(!,!-* /4 .2* $ &41 .2*4 2&3.!;5 ,;*1 # - P $ ( )& f (/<&<;5 !4 .2!3 "-&3* &3 !4 6&45 /.2*(3 .2* 3&-(!,!-* A&3 /(!>!4&;;5 (*>&(1*1 &3 & 2* ,&-. .2&. .2Z A!! A*(* 7(*3*4. !3 (*-/(1*1 <5 *3.03 # *>!,0>!06 9 /33!<;5 .2*!(7(*3*4-* 2&1 .2* 3&6* 3!>4!,!-&4-* &3 .2* -*(*6/45 /, ;*&7!4>* *.- 7*(,/(6*1 <5 .2*6 !4 &(-2 7(*306&<;5 A!.2 & =!*A ./ 1(!=!4> *=!; 1*6/43 &A&5 (/6 .2* -!.5 #$! 7 =V$ V9

G *!*>&.;/ &4!326*4. ,(/6 /6*! !67*(!&; .!6*3 & 6!;1*(,/(6 /, *O!;* 83**"

' A2!-2' 1!1' 4/.' &,,*-.' .2*' (!>2.3' &3' &'-!.!Q*4' /,' &' 6&4'3*4.*4-*1' ./' !.
;!>!/4 ' 8 9' 2' >/13' /,' .2*' (**D3' A*(*' /(!>!4&;;5' 7*(3/4!,!-&.!/43' /,' .2*' 7/A*(3' /,' 4&.0(*' ;!6!.*1' !4' .2*!(' &-.!=!.5' ./' .2&.' 7(/=!4-*' /,' 4&.0(*' ,(/6' .2*' 72*4/6*4&' /,' A2!-2' .2*5' &(*' 1*(!=*1' 3' .2*3*' 72*F 4/6*4&' A*(*' (*>&(1*1'&3'&-.3'/(' 3/,!,*(!4>3' /,' .2*' >/13' !4' :0*3.!/4' &'-5-;*' /,' 65.23' A&3' .203' 1*=*;/7*1' 4' .2*' 6!413' /,' .2*' 7*/7;*' .2*' 37*-!&;' 3!>4!,!-&4-*' /,' .2*3*' 65.23' 4*-*33&(!;5'=&4!32*1'!4' 7(/7/(.!/4'&3' .2*' /(!>!4&;'-/44*0!/4' /,' .2*' >/13' A!.2' .2*' 72*4/6*4&' /,' 4&.0(*' (*-*1*1' ./' .2*' <&-DF >(/041'A2!;*'>(*&.*('7(/6!4*4-*'A&3'>!=*4' ./' .2*' -/4-*7.!/4' /,' .2*' >/13' &3' 7*(3/4&;' <*!4>3' 2/;1!4>' 3A&5'7(!6&(!;5'!4' .2*!(' /A4' '7(/=!4-*' /,' 4&.0(*' &41' .2*4' <*5/41' .2/3*' ;!6!.3' &41' 4/' ;/4>*(' *0-;03!=*;5' !4' -/4F 4*0!/4' A!.2' .2*' 7/A*(3' /,' 4&.0(*' 4' .2*' /;1*3.' (*-/(13' /,' .2*' !4.*;;*-.0&;' ;!,*' /,' (**-* [.2*' /6*(!-'7/*63 [.2!3'.(&43!.!/4' 2&3' &;(*&15'<**4'-&((!*1'/0.' 2*' /6*(!-' 1*!.!*3' &(*' *0-;03!=*;5' /--07!*1' A!.2' .2*' >/=*(4!4>' /,' 6/(.&;3'A2/3*' A2/;*' ;!,*' !3' (*7(*3*4.*1'&3'<*!4>' 041*(' .2*!(' !4,;0*4-*' A2!;*' .(&-*3' /,' .2*' /;1*-/44*0!/4' A!.2' .2*' 72*4/6*4&' /,' 4&.0(*' &(*&(*(&(*;5',/!61'&41'.2*' /;1' 65.23' 2&1' ;/4>' 3!4-*' <*-/6*' 04!4.*;;!F >!<;*' .&;*3' !4' A2!-2' .2*' &-.!/43' /,' .2*' >/13' &77*&(*1' 04(*&3/4&<;*' &41' !66/(&;' 3!4-*' .2*!(' 6*&4!4>' A&3' 4/' ;/4>*(' -;*&(' 4' (*>&(1' ./' (*;!>!/4' &3' !4' /.2*(' 6&..*(3' .2*' /6*(!-' 7/*63' &(*' /,' .2*' 0.6/3.' !67/(F .&4-*' ,/('!,'!4'2!3./(!-&;.!6*3'&-*(.&!4'04!F ,/(6!.5'7(*=&!;3'!4'.2*'(*7(*3*4.&.!/4' /,' .2*' 1*!.!*3' .2!3' 6&5' *' .(&-*1'!4'4/'36&;' 1*F >(**' ./' .2*' !4,;0*4-*' /,' /6*(' &41' /,' /.2*(' 7/*.3' 8*37*-!&;5' *3!/19' A2/' A*(*' 041*(' 2!3' !4,;0*4-*' &41' A2/' >&=*' 1!3.!4-.' ,/(6' ./' .2*' G=&>0*' (*7(*3*4.&.!/43' /,' &4' *&(;!*(' .!6*' *=*(.2*;*33' .2!3' 04!,/(6!.5' /4;5' *0!3.*1'!4'&'>*4*(&;'A&5' !4'1*.&!;'.2*(*' A&3' .2*' >(*&.*3.'-/4,03!/4' /,/(' .2*' (**D3'4*=*(' &..&!4*1' ./' &' 04!,/(6' (*;!>!/03' 353.*6'&41' ./' ,!0*1' (*;!>!/03' 1/>6&' 2*5' 7/33*33*1' /4;5' &'-/4.(&1!-./(5' &41' &6<!>0/03' 65.2/F ;/>5' 2*' /4;5' .2!4>' A2!-2' A&3' -/6F 7&(&.!=*;5' *3.&<;!32*1' A&3' .2*' .(&1!.!/4&;' A/(32!7' <0.' !4' .2!3' .2*(*' A&3'>(*&.' 1!=*(F 3!.5' /,' 7;&-*' &41' .!6* 2*' -/66/4' <*;!*;' A&3' .2&.' .2*' >/13' A*(*' 307*(206&4' .2/0>2' .2*5' A*(*' ;!D* 6/(.&;3' !4' ,/(6' &41' !4' .2*' /(1!4&(5' 4*-*3F 3!.!*3' /,' ;!,*' 8,//1' 1(!4D' 3;**79' .2&.' .2*5' 2&1' 7/A*(' /=*(' 4&.0(*' &41' 206&4' <*!4>3' .2&.' &;' >//1' &41' *=!;'-&6*' ,(/6' .2*6' .2&.' .2*!(' ,&=/0(' -/0;1' <*' /<.&!4*1' <5' <*2&=!/0(' A2!-2' A&3' 7;*&3!4>' ./' .2*6' &41' ;/3.' <5 .2&.' A2!-2' 1!37;*&3*1' .2*4(' 6/4>' .2*' (**D' >/13' .2*(*' A&3' 4/' (*7(*3*4.&.!=*' /,' *=!;' 4*!.2*(' !4' 7/70;&(' <*;!*,' A&3' .2*(*' /4*' /,' &<3/;0.*' 7*(,*-.!/4'&41'2/;!4*33' &41' .2*' 1*!.!*3' A*(*' (*7(*3*4.*1'&3'-*!4>' 30<(*-.'./' 6/(&;' A*&D4*33' &41' 1*=!&.!/4' ,(/6' (!>2.' [B&' <*;!*,' A2!-2' A&3' ,/3.*(*1' <5' .2*' .(&F 1!.!/4&;' 65.2/;/>5' 2*' >/13' 7/33*33*1' !66/(.&;!.5' <0.' 1!1' 4/.' *0!3.' ,(/6' .2*' <*>!44!4>' /,' &;' .2!4>3
4' .2*' /7!4!/4' /,' .2*' (**D3' .2*' (0;!4>' (&-*' /,' >/13' .2*' ;567!&43' [3/'-&;;*1' ,(/6' .2*!(' &</1*' ;56703[A*(*' .2*' .2!(1' (&-*' /,' >/13' 8 2*' ,!(3.' (0;*(' A&3' " ' 8 *&=*49' A2/' <5'2!3'6/.2*(' 6 7' 8 &(.29' A2/' </(*' 2!6' 37/4.&4*/03;5' 2!63*;,' <*F -&6*' .2*' ,&.2*(' /,' .2*' !.&43' *' A&3' *OF 7*;;*1' <5' 2!3' 3/4' $ " ' A2/3*' 1&0>2.*(3' <5' 2!3' 3!3.*(' 7(' A*(*' 5 ' &41' 8 $ &41' 2!3' 3/43' 8 ' 8 ;0./9' , "' &41' N ' *' A&3' 2!63*;,' *07*;;*1' <5' 2!3' ;&3."4&6*1' 3/4' 2*4' L*03' <5' .2*' &!1' /,' 2!3' <(/.2*(3' &41' 3!3.*(3' 2&1' /=*(-/6*' .2*' !.&43' A2/' (*<*;;*1' &>&!43.' .2*' 4*A' /(1*(' .2!4>3' 2*' 1!=!1*1' .2*' A/(;1' A!.2' 2!3' <(/.2*(3' 2*' *&(.2' &41' ;56703' (*6&!4*1' -/66/4' 7(/7*(.5' &1*3' /<.&!4*1' .2*' 4*.2*(' A/(;1' 3*!1/4' .2*' 3*&" L*03' .2*' 2*&=*43' &41' &3' <*!4>' .2*' 3.(/4>*3.' &41' A!3*3.' 2*' &;3/' 2&1' &0.2/F (!.5' /=*(' &;;' .2*' /.2*(' >/13' A2/' A/(D*1' 2!3' A!;;' (*-*!=*1' ,(/6' 2!6' .2*!(' /,,!-*3' &41' 372*(*3' /,' &-.!/4' &41' 3*(=*1' 2!6' &3' 2*;7*(3' !4' .2*' >/=*(46*4./,' .2*' 04!=*(3*' --/(1!4>' ./' .2!3' 1!=!3!/4' /,' 7(/=!4-*' .2*' >/13' &(*' 1!=!1*1' !4./' .2*' 1!=!4!.!*3' /,' ("' &41' ('&41' 3' !4' &;' (*;!>!/43' ,/041*1'/4' 4&.!.(*' 3/' A!.2' .2*' (**D3' .2*' >/13' /,' 2*&=*4' .&D*' .2*' ,!(3.' 7;&-*' 2*5' &(*' 37*-!&;;5' -&;;*1' : " *' &41' !4' -/4.(&3.' ./' .2*' >/13' /,' .2*' *&(.2' &41' 3*&' &(*' -&;;*1' .2*' >/13' &</=*' /(' .2*' 077*(' >/13' 2*' 7(!4-!7&;' 1*!.!*3' &,.*('L*43' &(*' (" ' ' (' ' &41' ' /041' .2*6' &(*' >(/07*1' &' 406<*(' /,' 6!4/('1*!.!*3' A2/' *!.2*('*3-/(.' &41' 3*(=*' .2*' 077*(' >/13' 8&3' ,/('!43.&4-*' +(' &41' .2*' ' .2*' 6 '.2*' '9 ' > ' ' ' ! ' 6 ": ' /(' *;3*' (*7(*3*4.' 1!3.!4-.' 72*F 4/6*4&' /,' .2*' 2*&=*43' &3' '8.2*' 3049' " '8.2*' 6//49' 9 '8.2*' 1&A49' /(*O*F -0.*'37*-!&;'3*(=!-*3'!4'.2*'2*&=*4"/(1&!4*1' >/=*(46*4./,' .2*' 04!=*(3*' &3' .2*' >/11*33' /,'<!(.2'9 (: '.2*' 2*&;!4>'>/1' 2 '&41' .2*' >/11*33*3' /,' 1*3.!45'# ' > ' + (' 2*' >/13' /,' .2*' 3*&' <*3!1*3' , "' &41' 2!3' 37/03*' (2

&41' 2!3' 3/4' + "'&(*' "'&41' 2!3'/,,37(!4>' > '&41'.2*' >', 2 '!"'#; (' 3 '&, "' '&, " ' 2*' >/13'/,' .2*' *&(.2' "&(*' 6 ' 2*(3*;,' ('&$ '5 ":' ', "' .2*' >: ('&41' :' 5 '&71' 2*(' 1&0>2.*(', ("' A!.2' 2*(' 7/03*' '&, ' 2*';&3.' .A/' &(*' .2*' (0;*(3'/,'B.2*' 4*.2*(' A/(;1'./' A2!-2' '&41'.2*' 9 ":' &;3/'<*;/4>

2*' 40 6<*(' /,'<*!4>3' (*>&(1*1'&3' 1*!.!*3' A&3' 4*=*(' -;*&(;5'1*,!4*1' (/6' .2*' *&(F ;!*3.' .!6*3' !4' (**-*' A*' ,!41'1*!.!*3' A/(" G32!77*1' !4' /4*' 7;&-*' A2/' A*(*' 4/.' D4/A4' !.4' &4/.2*(' 0.' 3/6*'/,' .2*3*' &3' !/45303 !&41' &4'<*-&6*' -/6 6/4' 7(/7*(.5!4' -/0(3*' /,' .!6*" &41' .2*' 6/(*' ;&3.!4>' &41' 6/(* %0.*43!=*' .2*' !4.*(-/0(3*'<*-&6*'A!.2'/.2*(' 7*/7;*3' 6/(*' *37*-!&;5'!4' .2*' -/;/4!*3' .2*' !4.(/10-.!/4' /,' ,/(*!>4' 1*!.!*3' <*-&6*' '>(*&.*(' /6*'/,' .2*3*' A*(*' !1*4.!,!*1'A!.2 .2*' >/13' &;(*&15' A/!32!77*1' A2!;*' /.2*(3' 7(*3*(=*1' .2*!(' /(!>!4&;' &..(!<0.*3' 30<!(*-. %/,' -/0(3*' ./' 6/1!,!-&.!/43' ./' 30!.' .2*' 37!(!.' /,' .2*' (**D3' 2!3' &7.!.01*' ,/(' 4&.0(&F ;!3!4>' ,/(*!>4' (*;!>!/43' 1*-;!4*1' 6/(*' &41' 6/(*' &3' (**-*' -*&3*1' ./' ,;/0(!32' 4' .2*' /.2*(' 2&41'3/6*' /(!>!4&;' 1*!.!*3' ;/3.' .2*!(' !41*7*41*4-*' '&41' A*(*' 6*(>*1'!4./' /.2*(3 '30-2' &3' *;!/3' &41' 7/;;' *;*4*' &41' (.*6!3' 4' .2*' 7/70;&(' <*;!*,' /,' .2*' 7/3.'" /6*(!-' .!6*' &4/.2*(' 406*(/03' -;&33' /, %307*(206&4' <*!4>3' 37!"&4>' 07' A2!-2' A*(*' (*>&(1*1' &3' <*!4>' <*.A**4' >/13' &41' 6*4' .2*' "'8 ('5 "' '&41' '& = 3'./' .2*!(' 4&.0(*' &41'.2*!(' 406<*(' .2*(*' A&3';*33' 04!,/(6!.5'.2&4'!4'.2*' -&3*' /,' .2*' (*&;' >/13' 2*' *(/*3' 2&1' /4;5';/-&;' !6F 7/(.&4-*' =*4'!4'.2*' -&3*' /,' .2*' >/13' 04!F =*(3&;;5' A/(32!77*1' !.' A&3' <5' 4/' 6*&43 &;' 84/.*=24' .2*' 6/3.' !67/(.&4.' .2&.' 2&1' &'7;&-*' *=*(5A2*(*' !4' .2*' 70<;!-' A/(32!7' 4' .2*' -&3*' /,' -*(.&!4' >/13' .2*!(' A/(32!7' A&3' /4;5'*0-*7.!/4&;' &41'.2/3*' >/13' A2/' d<5' /(1*(' /,' .2*' .&.*' A*(*' A/(32!77*1' !4' &45'7&(.!-0;&(';&-*'1!1'4/.'4*-*33&(!;5'*4K/5' ,/(' *=*(' .2*' 7/3!.!/4' ./' A2!-2' .2*5' A*(* %4.!.;*1' =*4' L*03' A2/' A&3' 04!=*(3&;;5' (*>&(1*1' &3' .2*' 2!>2*3.' /,' .2*' >/13' &41' ,!>0(*1' !4' .2*' -0;.' /,' 6/3./,' .2*' 1!,,*(*4.' .&.*3' A&3' 4/.' 2!63*;,' A/(32!77*1' &3' 30F 7(*6*' " <0."'.2/3*' >/13' A2/' 2&1' &;A&53' 2&1' .2/',!(3.' 7;&-*' !4' .2*' -0;.' /,' .2*' (*37*-.!=*' .&.*3'.//D' 7(*-*1*4-*' /=*(' 2!6' &41' .2*3*' A*(*' 4/.' &;A&53' 1!=!4!.!*3' /,' 7(*"*6!4*4.' !67/(.&4-*' 4' .2*43' &;;&3' .2*43' A&3' A/(32!77*1' &3' .2*' 7(!4-!7&;' 1*!.5' *(&' !4' (>/3" &6/4>' .2*' /(!&43' *37*-!&;;5' &.' *;72!' 7/;;/" &6/4>' .2*' ;/4!&43' /3*!F 1/4" &.' 2/1*3' *;!/3" &.' &0/3' !/45F 303'" &.' 2*37!3*' (/3'&.' (-2 6 403'.2*' 2 (.3 8/(' (&-*39' =*4'!4'.2*' -&3*'/,' .2*' 3&6*' 1*!.!*3'.2*' ;/-&;' -03./63' /,.*4' 1!,,*(*1' /43!1*(&<;5' !4' (*37*-.' /,' .2*' 4&6*3'.2&.' A*(*'>!=*4'./' .2*6' .2*!(' &..(!F <0.*3' &41' .2*' ,/(6' /,' A/(32!7' 2*3*' 1!,,*(*4-*3' A*(*' 10*' 7&(.;5'./' ;/-&;' -&03*3' &41' ;/-&;' /7!4!/43' 7&(.;5' ./' ,/(*!>4' !4" ,;..*4-*" &41' A*(*' /--&3!/4&;;5' 3/'-/43!1*(F &<;*' .2&.' 1/0<.3' & 3*' A2*.2*(' 1!,,*(*4.' 1*!.!*3' A*(*' 4/.' (*&;;5' (*7(*3*4.*1' 041*(' .2*' 3&6*' 4&6*' &3',/(' !43.&4-*' 72(/1!.* 2*' 1*!.!*3' A*(*' 3077/3*1'./'<*'37*-!&;;5' >(&.!,!*1' <5' .2*' -&(*,0;' /<3*(=&4-*' /,' .2*' .(&1!.!/4&;' (!.0&;' 2!3' -/4.!40*1' ./' <*' -&((!*1'/4' &--/(1!4>'./' &4-!*4.'-03./6'3/' .2&.' .2*' 1*.&!;3' /,' .2*3*' &4-!*4.'-0;.3' A*(*' /,.*4' -0(!/03'&41' .2*!(' -/44*0!/4' A!.2' .2*' (*;!>!/03' !1*&3' /4' 2!-2' .2*5' (*3.*1' A&3' /,.*4' 04!4.*:;!>!<;*' /A*=*(' A!.2' .2*' 1*=*;/76*4.' /,' 6/(&;!.5' .2*' =!*A' <*>&4' ./' 7(*=&!;' .2&.' .2*' /<3*(=&4-*' /,' 10.!*3' ./A&(13' .2*' .&.*' &41',*;;/A' 6*4' A&3' &;3/' ,&=/0(*1' <5' .2*' >/13' &3' >0&(1!&43'/,' .2*' 7(/=!1*4.!&;' /(1*(' 7,' .2*' A/(;1" <0.' !4' .2*' *5*3'/,' .2*' 60;.!.01*' .2*' 7(!4-!7&;' 6*&4F !4>' /,' 87!*.59' A&3' .2*' 7*(,/(6&4-*' /,' .2*' /(1&!4*1' A/(32!7' /,' .2*' >/13' >&!4' .2*' -&(*' /,' !D*' .&.*' A&3' -/4,!4*1' ./' .2*' /0.A&(1',/(63'/,'(*;!>!/4' &41' ./' .2*' 6&!4F .*4&4-*' /,' .2*' .(&1!.!/4&;' ;*>&;' (!.0&;' ;.*(&.!/43' !4' .2!3' (!.0&;' &41' .2*' !4.(/F 10-.!/4' /,' 4*A' -0;.3' A*(*' /4;5' 6&1*' <5' &0.2/(!.5'/,' .2*' ;*>!3;&.!=*' 7/A*(' 030&;;5' &,.*(' &4'/(&-;*' 2&1'<**4'-/430;.*1'./' 1*.*(F 6!4*' .2*' 1!=!4*' A!;;' *3!1*3' .2*' A/(32!7' /,' .2*' 1*!.!*3' (*-/>4!3*1' <5' .2*' .&.*' 7(!=&.*' /<*-.3' /,' 1*=/.!/4' A*(*' ,/041' *=*(5A2*(*' /(' !43.&4-*' !4' .2*' -&3*' /,' ,/(*!>4' 1*!.!*3' &.' .2*43' A2*(*' .2*(*' A*(*' 6&45' 3.(&4>*(3' *!.2*(' 7&33!4>' .2(/0>2' /(' 7*(6&4*4.;5' (*3!1*4.' ,/(*!>4' (*;!>!/43' A*(*' ./;*(&.*1' 3/' ;/4>' &3' .2*5' 1!1' 4/.' *41&4>*(' .2*' .(&1!.!/4&;' A/(32!7' /(' *0-!.*' 70<;!-'1!3.0(<&4-*' <5' .2*!(' /0.A&(1' (!.0&;' &45' 30-2' -0;.3' A*(*' 4&.0(&;!3*1' !4' .2!3' A&5' &41' <*-&6*' !4' -/0(3*' /,' .!6*' 7&(.' /,' .2*' .&.*' (*;!>!/4' /4:0*3.' &>&!4' -/4F .(!<0.*1';&(>*;5'./A&(13'.2*!4.(/10-.!/4/,' 4/=*;.!*3" ,/(' .2*' &-:0!3!.!/4' /,' 4*A' .*((!F ./(5!4=/;=*1' .2&.' /,' .2*' (*;!>!/03'(!.*3' 2*;1' .2*(*!4' 41' ;&3.;5' /;1' (*;!>!/43' A2!-2' 2&1' <**4' ;//D*1' 07/4' &3' 307(*6*;5'2/;5' *=*4!,' .2*5' A*(*' 4/.' &<3/;0.*;5' 307*(3*1*1' !4' .2*' -/0(3*' /,' .!6*' <*-&6*' ;*33!67/(.&4.' !4' -/67&(!3/4' A!.2' /.2*(3' /,' ;&.*(' /(!>!4 2(!4*3' &41' .2*' 3.&.0*3' /,' .2*' >/13' 7(*F 3*(=*1' !4' .2*6' A*(*' .2*' -*4.(&;' 7/!4.3' /,

.2*' A/(32!7' /,' .2*'1!,,*(*4.'1*!.!*3' 3';/4>' &3'.2*' >/13' A*(*' 4/.' (*7(*3*4.*1' &3' 2&=!4>' 206&4' ,/(6' 3./4*3' *37*-!&;;5' .2/3*' ,&;;*4' ,(/6' 2*&=*4' /(' <;/-D3' /,' A//1' A*(*' .2*' /<K*-.3' /,' A/(32!7' 5' =&(!/03' 3.&>*3' /,' 7(/>(*33' .2*'>/13' A*(*' &.';*4>.2' (*7(*3*4.*1' <5' &-.0&,' !6&>*3' .',!(3.' .2*5' A*(*' 6&1*' /,' A//1'.2*4' /,' 3./4*' &41' 6*.&,' ;&5'&41' *=*4' A&0' A*(*' >*4*(&;;5' 03*1',/(' 7(!=&.*' /<K*-.3' /,' 1*=/.!/4' 2/0>2' .2*' (*&,' 70(F 7/3*' /,' .2*3*' 356</;3' &41' !6&>*3' A&3'./' (*7(*3*4.' .2*' 1!=!4!.5'./' .2*' /(32!77*(3' <5' 6*&43' /,' &' =!3!<;*' 3!>4' 4*=*(.2*;*33' !4' .2*' 7/70;&(' <*;!*,' !.' A&3' >*4*(&;;5' 7(*F 306*1'.2&.' .2*' 1!=!4!.5' A&3'&-.!=*;5' 7(*3*4.' !4' .2*6' --/(1!4>;5' .2*' A*;,&(*' /,' .2*' .&.*' A&3' /,.*4' 3077/3*1'./' <*' </041' 07' A!.2' .2*' 7/33*33!/4' /,' -*(.&!4' 356</;3' &41' !6&>*3' /,' .2*' >/13

2*' 1*-;!4*' /,' .2*' (**D' (*;!>!/4' <*>&4' A!.2' .2*' 1*-;!4*' /,' .2*' .&.*' &,.*(' .2*' *;/F 7/44*3!&4' &(' ;.2/0>2' .2*'72!;/3/72*(3' 2&1' &;(*&15' 1!(*-.*1' .2*!(' &33&0;' &>&!43.' .2*' <*;!*;' /,' .2*' 7*/7;*' A2!-2' A!.2' !.3' &4.2(/7/6/(2!36' &41' !.3' !4-/43!3.*4-5' *07/3*1'!.3*;,' !4' 6&45' A&53'./' .2*' &..&-D3' /,' .2*' -(!.!-&;' 37!(!.'5*.' .2*' ,&!.2' /,' .2*' 60;.!.01*' !4' .2*' /;1' >/13' (*6&!4*1' 04F 32&D*4' ,/(' !.' 2&1' ;/4>' &..(!<0.*1' .2*' 1*;!=*(&4-*',(/6' .2*' 7*(!;3' /,' .2*' *(3!&4' &(3'./.2*!(' 6!>2.5' &41' 6*(-!,0;'!4,;0*4-*' 0.' &,.*(' .2*' *;/7/44*3!&4' &(' .2*'4/.!/43' /,' .2*'72!;/3/72*(3' >&!4*1' >(/041' &6/4>' .2*'7*/7;*' &41' 041*(6!4*1' .2*' /;1' <*;!*,B' A!.2/0.' 2/A*=*(' 3077;5!4>' &45' &;.*(4&F .!=*' ./' .2*' (*;!>!/03',**;!4>' A2!-2'-/0;1'4/' ;/4>*(' <*' 3&.!3,!*1' A!.2' .2*' /0.A&(1',/(63' /,' A/(32!7' A2!-2' 3.!;' 30(=!=*1' !.2' 04<*;!*,' 307*(3.!.!/4'-&6*' !4' A2!-2' A&3' ,/3.*(*1' 8*37*-!&;;5' &,.*(' .2*' &-*1/4!&4' *7/-29' <5'.2*',/(*!>4' &41' <&(<&(/03'-0;.3' &41' .2*' 1*>*4*(&.*' ,/(63' /,' 653.!-!36' A2!-2' A*(*' !67/(.*1',(/6' 3!&' &41' >57. 8;;9' 2*' .&;!&4' .(!<*3' ,(/6' A2!-2' .2*' /6&4' 7*/7;*' 7(&4>' 2&1' &'-/66/4'/(!>!4' A!.2' .2*' (**D3' &41' &'-/66/4',/041&.!/4' /,' (*;!>!/03' !1*&3' <0.'/4' .&;!&4' 3/!;' .2*3*' (*;!>!/03' !1*&3' (*-*!=*1' &4' *33*4.!&;;5' 1!,,*(*4.'1!(*-.!/4' !D*' .2*' (**D3'.2*' .&;!&43' (*>&(1*1' .2*' 1*!.!*3' &3' 7*(3/43' 3*7&(&.*1'&3'./'3*0' &41' 04!.*1' !4'-/07;*3' <0.' A2!;*' .2*' !6&>!4&.!=*' (**D3' 3&A'!4' .2*!(' >/13' !1*&;',/(63',0;';'/,'!41!=!10&;':!,*' .2*' 6/(*' 3/<*(' 6!41' /,' .2*' .&;!&4' .(!<*3' *37*-!&;;5' /,' .2*' /6&43' >/.' 4/' ,0(.2*(' .2&4' .2*' &<3.(&-.' /;1!4>' ./' .2*' ,041&F 6*4.&;' !1*&' .2*5' A/(32!77*1' !4' .2*' >/13' .2*' &<3.(&-.'7/A*(3' /,' 4&.0(*' 041*(' A2/3*' !4,;0*4-*' 6&4' <*;!*=*1' 2!63*;,' ./' <*' &.

=(5' 6/6*4.' 2*' /(!>!4&;' .&;!&4' >/13' A*(*' >(&=*' &41'=*4*(&<;*' &41' !4' &' -*(.&!4' 3*43*' 6/(*' 6/(&;' .2&4' .2/3*' /,' .2*' (**D3' <0.' .2*5' ;&-D*1' 7;33.!4' ,/(6' &41' 7/*.!-' <*&0.5' --/(1!4>;5' !.' !3' /4;5' A!.2' -*(F .&!4' (*3*(=&.!/43' .2&.' A*' -&4' 37*&D' /,' & /6&4' 65.2/;/>5' !4' &' 3*43*' -/((*37/41F !4>' ./' .2&.' /,') *' (**D3' 2*' /6&43'' ;&-D*1'&4' ;56703' &41' &' &1*3'&41' D4*A' 4/.2!4>' /,' 3./(!*3'&</0.' .2*' (&-*' &41' (*;&F .!/432!7'&41' .2*';/=*"&,,&!(3'/,' .2*!(' 1*!.!*3' 4' .2!3' &<3.(&-.'4&.0(*' /,' .2*' /6&4' >/13' !.' !3' !4.*;;!>!<;*' .2&.' .2*' /6&43' 10(!4>' .2*',!(3.' @NN' 5*&(3',(/6' .2*' ,/041&.!/4' /,' /6*' 7/33*33*1' 4/' !6&>*3' /,' .2*!(' >/13B' <...' (*7(*3*4.*1' .2*6' <5' 356</;3' 1' 07!.*(' <5' &' ,;!4."3./4*' &(3' <5' &' 37*&(' *3.&' <5',!(*' A2!-2' *=*4' !4' ;&.*(' .!6*3' (*6&!4*1'.2*'356</;/,' .2*'>/11*33' 4'.2*' *&(;!*3.' /6&4"(*;!>!/4'.2*' 1*!.!*3' /,' .A/' .&;!&4' (&-*3' .2*' &.!43' &41' .2*' &<!4*3' A*(*' 04!.*1' /6*' 2&=!4>' <**4' /(!>!4&;;5' 7*/7;*1'<5'.2*'04!/4' /,' .2*3*' .(!<*3' 2*' 6/3.'!67/(.&4.'>/13' A*(*' >/1' /,' ;!>2.' &41' .2*' >/1' /,' &;' <*>!44!4>' " *' .2*' >/1' /,' 2*&=*4' ' .2*' >(*&.*3.' 7(/F .*-./(' /,' .2*' 4&.!/4' A!.2' A2/6' A&3'K/!4*1' .2*',*6!4!4*' *;*6*4.'!4' " 'K03.'&3' " ' 8 !&4&9' A&3'-/44*-.*1' A!.2' &403' ' /(!>!4&;;5' .2*' 7(/.*-./(' /,' &>(!-0;.0(*' .2*' &4-*3.(&;'>/1' /,' .2*' &.!4'(&-*' T " ' /(!>!4&;;5' .2*' -/((*37/41!4>' >/1' /,' .2*' &<!4*3' &41' = ' .2*' >/11*33' /,' .2*' 2*&(.2' /,' .2*' .&.*' *3!1*3'.2*3*' 7(!4F -!7&;' 1*!.!*3' /.2*(3' A*(*' A/(32!77*1' &3' 7&.(/43' /,' .2*' ,&(6*(3' &41' 32*72*(13' 2*!(' &-.!=!.5' *0.*41*1'/=*(' .2*' *&(.2' .2*' ,!*;13' &41' .2*' A//13' .2*5' <;*33*1' .2*' ,(0!.3' /,' .2*' ,!*;1' &41' >&(1*4' &41' >&=*' 7(/37*(!.5'./' .2*' -&..;*' 0-2' A*(*' + $ ' &41' ' ;<C ' &41' ; ' A " ' $ " ' A ' = 2 " ' , " ' 2*' >/13' /,' .2*' 3*&' 2/A' *=*(' A2/' 2&1' 30-2' &4' !67/(.&4.' 7/3!./!4' .2*' (*-!&4' 65.2/;/>5' 2&1' 4/.' 4*&(;5' .2*' 3&6*' !67/(.&4-*' !4' /6&4' !1*&3' &3' .2*' >/13' /,' 2*&=*4' &41' *&(.2' ,/(' !4' .2*' *&(F ;!*3.' .!6*3' .2*' 3*&' A&3';!..;*' (*>&(1*1' <5' .2*' /6&43' 4/.2*(' /<K*-.' /,' (*;!>!/03' A/(32!7' A&3' .2*' >/13' /,' .2*' 2/03*' &41',&6!;5' .2*' ' &41' , " ' 0.' <*F 3!1*3' .2*3*' .2*(*' A&3' &4' 04;!6!.*1' 406<*(' /,' 1!=!4*' <*!4>3' ,/(' .2*' /6&43' &3306*1' .2&.' .2*(*' A*(*' 1!=!4*' (*7(*3*4.&.!=*3' /,' *=*(5' !4&4!6&.*' /(' &4!6&.*' /<K*-.' /,' *=*(5' &-.!/4' &41' *=*! 5'*=*4.' /.'/4;5'1!1' *=*(5' 206&4' <*!4>' 7/33*33' &' 37*' !&;' 7(/.*-./(' .@) ' (1$' <0.' &' 406<*(' /,' 1*!.!*3' A&.-2*1'/=*(' 2!3'1*=*;/76*4.',(/6'-/4-*7"

7;*<3' A*(*' 4/.' &;;/A*1' ./' 7&(.!-!7&.*' !4' .2&.' (*;!>!/4'&41'A*(*'/4;5'&;;/A*1'./'A/("
(,!!7'.2*' /6&4'>/13'!4'7(!=&.*' 2*(*,/(*'
!4' .2*' ;/4>' 3.(0>>;*'!4' A2!-2' .2*' 7;*<3'
A!.2' .2*!(' *=*("!4-(*&3!4>' 7/A*(' *41*&F
=/0(*1' ./' 3*-0(*' .2*!(' (!>2.3' 8&' 3.(0>>;*'
.2&.' *41*1'!4' NN' ('!.' A&3'&' :0*3.!/4'/,'
(*;!>!/4'&3'A*;;'&3' /,' 7/;!.!-3' 3' (*>&(13'
.2*' A/(32!7' /,' .2*' >/13' &--/(1!4>' ./'
/6&4' !1*&3' &' 70(*' &41' 6/(&;' ;!,*' A&3'
7;*&3!4>'./' .2*6' &41' >&!4*1' .2*!(',&=/0('
2!3'A&3'2/A*=*('-/41!.!/4&;'/4' .2*' *0&-.'
7*(,/(6&4-*' /,' .2*' /0.A&(1'(!.0&;' A2!-2'
.2*' 353.*6' /,' (*;!>!/4' /(1&!4*1',/(' .2*!('
-0;.' .' -/43!3.*1' !4' &' =*(5'7(/;/4>*1'
-*(*6/4!&;' 7*(,/(6*1' &--/(1!4>' ./' .2*'
3.(!-.*3.' !4K04-.!/43' &41' A!.2' 7&!4,0;'
6!40.*4*33'/,'1*.&!;' 2!3'-*(*6/4!&;'A&3'
7*(,/(6*1'!4'70<;!-'&41'7(!=&.*';!,*'3/'.2&.'
4/' -/6604!.5';&-D*1'!.3'37*-!&;'32(!4*3'
&41'3&-(!,!-*3'83**' $ ('&41' 4/.2!4>'/,'
&45'!67/(.&4-*' A&3'041*(.&D*4' A!.2/0.'
(*;!>!/03'3&4-.!/4'A2!-2'!4=/;=*1'!4'7&(.!F
-0;&(' .2*'1!3-/=*(5'/,' .2*'1!=!4*' A!;;'<5'
6*&43',' -*(.&!4'3!>43'&') (2*'
,/(63'/,' /0.A&(1'A/(32!7' A*(*' (*.&!4*1'
;/4>'&,.*(' .2*' 1*-&5'/,' <*;!*,' !4' .2*' >/13'
2&1'3*.' !4' 2!3'1*-&5'A&3'-&03*1'<5'.2*'
7(*7/41*(&4-*' /,' .2*' (**D' *;*6*4.' &41'
.2*' -/4.*67/(&(5'!4.(/10-.!/4' /,' (**D'
*4;!>2.*46*4.' &41'!.'3//4'37(*&1'./' .2*'
,/(63'/,' A/(32!7' 0(!4>'.2*'>(*&.*('7&(.'
/,' .2*' (*70<;!-&4'7*(!/1'.2*'7(!*3.'&;;/A*1'
(*;!>!/4'./' .&D*'&'3*-/41&(5'7;&-*' ./'7/;!.!-3'
&41'*!.2*(' ,(/6'!41!,,*(*4-*' /(' !>4/(&4-*'
4*>;*-.*1'.2*!(' /,,!-!&;'10.!*3

41*(' .2*' 67!(*'A2*4'*=*4' .2*' 1*!,!F
-&.!/4'/,'1*-*&3*1'*67*(/(3'A&3'!4.(/10-*1'
& '&4'&..*67.'A&3'6&1*' ./'
>!=*'&4'&(.!,!-!&;';!,*' ./' .2*' &4-!*4.',/(63'
/,'A/(32!7'' <0.'(*;!>!/03',**;!4>'-/0;1'4/.'
<*'(*D!41;*1'<5',/(63'A2!-2'2&1';/4>';/3.'
.2*!(' 6*&4!4>' 2*4'.2!3',**;!4>'(*=!=*1'
!.'7(*,*((*1'&3'!4' (**-*'./',!41'(*,0>*'!4'
3.(&4>*' (!*4.&;n'(!.*3'*37*-!&;;5'.2/3*'/,'
!.2(&3'&41'/,' 3!3'&41' !(&7!3'A2!-2'<5'
6*&43'/,' .2*!(' 653.*(!*3'&41'.2*!(' *07!&F
./(5'-*(*6/4!*3'/,,*(*1'&'-*(.&!4*1'>(**'/,'
3&.!3,&-.!/4' .2/0>2'&.' .2*' 3&6*' .!6*'
.2*5';*1' .2*' A&5'./'*=*(5'-/4-*!=&<;*'D!4&'
/,'307*(3.!.!/4

2*' 3077(*33!/4' /,' 7&>&4!36'<*>&4' !4'
.2*' C.2' -*4.0(5',(/6'.2*' .!6*' A2*4' /4F
3.&4.!4*'1*-!1*1'!4',&=/0(' /,' 2(!3.!&4!.5'
!4' @C' ' .' -/66*4-*1'!4' .2*' *&3.*(4'
2&;,' /,' .2*' /6&4' *67!(*'A2!;*' !4' .2*'
A*3.*(4'2&;,'&41'&.' /6*'!4'7&(.!-0;&(' .2*'
/6&4',/(6' /,' A/(32!7'(*6&!4*1' *33*4F
.!&;;5'041!3.0(<*1'04.!;' .2*' (*!>4'/,' 2 ?"
1 3 03' .2*' (*&.'8 UT" TV9' .2*' (*3/;0.*'
0.(6!4&./(' /,' 7&>&4!36' 4' TC' .2*'
;567!-'> 6*3'A*(*'2*;1',/('.2*';&3.'.!6*'
!4' /6*'.2*'*41/A6*4.'/,'&!;'70<;!-',/(63'
a' A/(32!7'/0.'/,'.2*',0413'/,' .2*' .&.*'
A&3'A!.21(&A4' .2*' 7(!*3.3'A*(*' 1(!=*4'
,(/6'.2*' .*67;*3'&41' .2*' .*67;*3'-;/3*1'd
=(.2*;*33'-*(.&!4'2*&.2*4'-03./63';/4>'
30(=!=*1'30-2'&3' .2*' &0>0(!*3'/,' .2*' /4F
30;3'&41'3/6*',*A',*3.!=&;3'.2&.'&16!..*1'/,'
<*!4>'-*;*<(&.*1'A!.2/0.'/,,*(!4>'3&-(!,!-*'
/(*4.*(!4>'&'.*67;*' 203'.2*';
A*(*'7/.'&</;!32*1'04.!;' CTC' A2*4'.2*5'
(.(&43,/(6*1'!4./'&' 2(!3.!&4',*3.!=&;
*;;>!/3;' !*3'8H-(!.!-&;'1&53!'H1&53'
/,'3-(07;*'/(*(*3.(&!4.I9' *(.&!4'37*-!&;'
1&53'A*(*'3/'-&;;*1'&6/4>'.2*' /6&43'
A2!-2'/A!4>'./' (*;!>!/03'3-(07;*3'A*(*'
1**6*1' 0430!.&<;*' ,/(' 7&(.!-0;&(' 041*(F
.&D!4>3' *37*-!&;;5',/(' <*>!44!4>' .2*6'
4'30-2'1&53'/4;5'A2&.' A&3'&<3/;0.*;5'
4*-*33&(5'A&3'1/4*' /',&(' &3' .2*5'&(*'
0430!.*1',/('3&-(*1'7/;!.!-&;';*>&;'/(' 6!;!F
.&(5'041*(.&D!4>3'.2*5'<*;/4>'./' .2*'
" & > '(B&(13'7(!=&.*'
&,,&!(3'.2*3*'1&53'A*(*'/,'1!,,*(*4.'D!413'
/6*'A*(*'/,'!;;'/6*4',/('K/0(4*53'/.2*(3'
,/('A*11!4>3' 4'.2*' ;&..*(' -&3*' .2*' 1&5'
7(*=!/03'A&3'&;3/'&=/!1*1'3/'.2&.'.2*',!(3.'
1&5'/,'6&((!*1';!,*'32/0;1'4/.'<*'&'1&5'/,'
042&775'/6*4' 6/4>'30-2'1&53'A*(*'
.2/3*'-/43*-(&.*1'./' .2*' 1*&1'&41'./' .2*'
>/13'/,'.2*'4*.2*('A/(;1'&3'.2*',' "!'
&41'(:A '&41'1&53'A2*4'.2*' "!'
!*.2*'A/(;1'<*;/A'3.//1'/7*4'83**o '
.2*' ; '& ' '+9!'f &;3/'1&KB3'3&-(*1'
./' *3.&'1&53'/4'A2!-2'.2*' &;;!'7&33*1'
.2(/0>2'.2*'-!.5'/(' .2/3*'A2!-2'A*(*'
1**6*1'04;0-D5'/A!4>'./' .2*!(' 2!3./(!-&;'
&33/-!&.!/43'&$ ' 'H'<;&-D'1&53'I9'30-2'
&3'.2*'&44!=*(3&(5'/,'.2*'<&..;*'/4'.2*' ; &'
8 0;5'$R.29'' &;3/'&;;'1&53'!66*1!&.*;5'&,.*('
.2*'-&;*'413'4/4*3'&41'!1*3'/4'&--/04.'/,'
.2*' (*7*&.*1'1*,*&.3'&41'1!3&3.*(3'*07*F
(!*4-*1'<5'.2*' /6&43'/4'.2/3*'1&53
C404. C.;/' 2*' /6&4'.*(6',(' .2*'
3/;*64'&41',/(6&;' &44/04-*6*4.'/,' .2*'
4&6*3'/,' .2*' 6&>!3.(&.*3'*;*-.*1'&.' .2*'
' <5' .2*' =/.*3'/,' .2*' 7*/7;*' 2*'
&44/04-*6*4.'A&3'6&1*' <5' .2*' (*.0(4!4>'
/,,!-*('A2/'7(*3!1*1'&.'.2*'*;*-.!/4'&41'A&3'
4*-*33&(5'./'>!=*' =&;!1!.5'./' .2*'*;*-.!/4
??.A1&66'(!6*4 8,(/6' "
' H'6/4*5'A2!-2'!3'/(1*(B'./' <*'
(*3./(*1!9' 2*'4&6*'>!=*4'<5'.2*' /6&43'
./' .2*' -2&(>*'<(/0>2.'&>&!43.'/,,!-!&;3',/('
*0./(.!4>' 6/4*5',(/6' /6&4' 30<K*-.3'/('
&;;!*3' 0-2'-2&(>*3'A*(*'&.',!(3.'<(/0>2.'
<*,/(*' .2*' *4&.*' A2!-2'2*&(1'.2*' -&3*

!.3*;,ˢ/(ˢ*;3*ˢ7&33*1ˢ!.ˢ/4ˢ./ˢ&ˢ-/6 6!33!/4ˢ
/(ˢ&>&!4ˢ-&03*1ˢ!.ˢ./ˢ<*ˢ<(/0>2.ˢ<*,/(*ˢ
.2*ˢ"L#ˢ<5ˢ.2*ˢ.(!<04*3ˢ.ˢ;&3.ˢ!4ˢ
$CTˢ ˢ&ˢ3.&41!4>ˢ-/0(.ˢ/,ˢK03.!-*ˢ83**ˢ
S0,,! !/ˢ 1$ˢ!4ˢ,&-.ˢ.2*ˢ,!(3.ˢ!4ˢ
/(4*ˢA&3ˢ!43.!.0.*1ˢ<5ˢ.2*ˢ ˢ
-/4.&!4!4>ˢ6/(*ˢ7(*-!3*ˢ1*,!4!.!/43ˢ/,ˢ&-.3ˢ
;!&<;*ˢ./ˢ704!32 6*4.ˢA!.2ˢ,/(6 3ˢ/,ˢ;*>&;ˢ
7(/-*10(*ˢ&41ˢ1*.*(6 6!4>ˢ.2*ˢ&6/04.ˢ/,ˢ
.2*ˢ7*4&;.5ˢ 2*ˢ!4-(*&3!4>ˢ!4-;!4&.!/4ˢ/,ˢ
.2*ˢ/,,!-!&;3ˢ./ˢ03*ˢ.2*ˢ&1 6!4!3.(&.!/4ˢ/,ˢ.2*ˢ
7(/=!4-*3ˢ&3ˢ6*&43ˢ/,ˢ*4(!-2!4>ˢ.2*6 3*;=*3ˢ
&.ˢ.2*ˢ*07*43*ˢ/,ˢ.2*ˢ7(/=!4-!&;3ˢ;*1ˢ./ˢ(*F
7*&.*1ˢ;*>!3;&.!/4ˢA!.2ˢ&ˢ=!*Aˢ./ˢ!4-(*&3!4>ˢ
.2*ˢ7*4&;.5ˢ 2*ˢ;&3.ˢ;&Aˢ/4ˢ.2*ˢ30<K*-.ˢ
A&3ˢ 3*3&(3ˢ ˢ? ˢA2!-2ˢA&3ˢ.2*ˢ<&3!3ˢ
/,ˢ.2*ˢ7(/-*10(*ˢ!4ˢ30-2ˢ-&3*3ˢ041*(ˢ
.2*ˢ 6 7!(*ˢ 0(!4>ˢ.2&.ˢ7*(!/1ˢ!4ˢ-/43*F
:0*4-*ˢ/,ˢ.2*ˢ!6 7(/=*1ˢ-/41!.!/4ˢ/,ˢ7(/F
=!4-!&;ˢ>/=*(4 6*4.ˢ*0./(.!/4ˢ/4ˢ.2*ˢ7&(.ˢ
/,ˢ/,,!-!&;3ˢ<*-&6*ˢ6 0-2ˢ(&(*(ˢ 0-2ˢ*0./(F
.!/4ˢA&3ˢ>*4*(&;;5ˢ704!32*1ˢ<5ˢ2&=!4>ˢ./ˢ
7&5ˢ,/0(ˢ.!6*3ˢ.2*ˢ&6/04.ˢ*0./(.*1ˢ .ˢ
A&3ˢ&;3/ˢ&..*41*1ˢA!.2ˢ&ˢ-*(.&!4ˢ1*>(**ˢ/,ˢ
1!3>(&-*ˢ . W@ # 1$ˢ*=*4ˢ!,ˢ&ˢ3.!,,ˢ6/(*ˢ
3*=*(*ˢK704!32 6*4.ˢA*(*ˢ4/.ˢ&11*1ˢ,/(ˢ
/.2*(ˢ/,,*4-*3ˢ-/6 6!..*1ˢP(.ˢ.2*ˢ3&6*ˢ.!6*ˢ
&41ˢ8&3ˢ030&;9ˢ!4-;01*1ˢ!4ˢ.2*ˢ!41!-.6*4.ˢ
. ˢ.2*ˢ/,,*4-*ˢ/,ˢ?" ˢ# 1
3.!.0.!/ˢ8(!43.&.!4>9ˢ ˢ.*(6ˢ&77;!*1ˢ
<5ˢ.2*ˢ/6&43ˢ./ˢ-&4-*;;!4>ˢ&ˢ;*>&;ˢ1*-!F
3!/4ˢ*37*-!&;;5ˢ./ˢ.2*ˢ(*3./(&.!/4ˢ/,ˢ(!>2.3ˢ
/,ˢ-!.!Q*432!7ˢ,/(,*!.*1ˢ<5ˢ-/41*6 4&.!/4ˢ!4ˢ
Bˢ-(!6!4&;ˢ-/0(.ˢ 41*(ˢ.2*ˢ*70<;!-ˢ.2!3ˢ
(*3./(&.!/4ˢ-/0;1ˢ2*ˢ;*>&;;5ˢ/<.&!4*1ˢ/4;5ˢ
<5ˢ&ˢ=/.*ˢ/,ˢ.2*ˢ7*/7;*ˢ 41*(ˢ.2*ˢ 6 7!(*ˢ
.2*ˢ*6 7*(/(ˢ&;/4*ˢ7/33*33*1ˢ.2*ˢ7(!=!;*>*ˢ/,ˢ
>(&4.!4>ˢ!.
*.;&(;03ˢ ˢ%
?03ˢ 2*ˢ.*(6ˢ03*1ˢ<5ˢ.2*ˢ/6&43ˢ,/(ˢ
.2*ˢ7*(3/4ˢ&--03*1ˢ*37*-!&;;5ˢ!4ˢ&ˢ-(!6!4&;ˢ
.(!&;ˢ 4ˢ30-2ˢ&ˢ-&3*ˢ-03./6ˢ(*:0!(*1ˢ.2*ˢ
&--03*1ˢ./ˢ&77*&(ˢ!4ˢ70<;!-ˢ!4ˢ.2*ˢ>&(<ˢ/,ˢ
6/0(4!4>ˢA!.2ˢ<*&(1ˢ&41ˢ2&!(ˢ!4ˢ&4ˢ04F
D*6 7.ˢ-/41!.!/4ˢ!4ˢ4*>;*-.*1ˢ&..!(*ˢ&41ˢ
3.(!77*1ˢ/,ˢ*=*(5ˢ3!>4ˢ/,ˢ(&4Dˢ 2*ˢ6*(*ˢ
&--03&.!/4ˢ!4=/;=*1ˢ3/6*ˢ3037*43*ˢ/,ˢ;*>&;ˢ
(!>2.3ˢ7(*=*4.!4>ˢ.2*ˢ ˢ,(/6ˢ3.&41!4>ˢ
,/(ˢ&45ˢ/,,!-*ˢ&41ˢ,(/6ˢ*0*(-!3!4>ˢ.2*ˢ,04-F
.!/43ˢ/,ˢ&ˢK01>*ˢ 2*ˢ2!>2*(ˢ/,,!-!&;3ˢA*(*ˢ
*0*6 7.ˢ,(/6ˢ-(!6!4&;ˢ&--03&.!/4ˢA2!;*ˢ!4ˢ
/,,!-*ˢ&41ˢA2*4ˢ*4>&>*1ˢ!4ˢ.2*ˢ1!3-2&(>*ˢ
/,ˢ70<;!-"<03!4*33ˢ &3.;5ˢ;&A30!.3ˢ<*F
.A**4ˢ.A/ˢ7*(3/43ˢ-/44*-.*1ˢ<5ˢ.!*3ˢ/,ˢ
,&6!;5ˢ/(ˢ/,,!-*ˢ30-2ˢ&3ˢ7&(*4.3ˢ&41ˢ-2!;F
1(*4ˢ7&.(/43ˢ&41ˢ-;!*4.3ˢA*(*ˢ(*>&(1*1ˢ
&3ˢ!4&1 6!33!<;*
*0ˢ&-(/6 6ˢ8/(ˢf -ˢ E ˢ.2*ˢ
HˢD!4>ˢ/,ˢ3&-(!,!-*Iˢ 2*ˢ4&6*ˢ>!=*4ˢ<5

.2*ˢ /6&43ˢ./ˢ&ˢ7(!*3.ˢA2/ˢ&,.*(ˢ.2*ˢ
&</;!.!/4ˢ/,ˢ.2*ˢ(/5&;ˢ7/A*(ˢ2&1ˢ./ˢ7*(F
,/(6ˢ-*(.&!4ˢ(*;!>!/03ˢ(!.*3ˢ-/44*-.*1ˢA!.2ˢ
.2*ˢ4&6*ˢ/,ˢD!4>ˢ *ˢ(*3*6<;*3ˢ.2*ˢ ("ˢ
ˢ/,ˢ.2*ˢ .2*4!&4ˢ-/43.!.0.!/4ˢ *ˢ
A&3ˢ&;A&53ˢ&ˢ7&.(!-!&4ˢA&3ˢ*;*-.*1ˢ,/(ˢ;!,*ˢ
<5ˢ.2*ˢ " -ˢ - ˢA!.2ˢ.2*ˢ&33!3F
.&4-*ˢ/,ˢ.2*ˢA2/;*ˢ7/4.!,!-&;ˢ-/;;*>*ˢ8/,ˢ
A2!-2ˢ(*ˢ<*-&6*ˢ&ˢ6*6<*(9ˢ&41ˢA&3ˢ!4F
&0>0(&.*1ˢ<5ˢ.2*ˢ&0>0(ˢ ;.2/0>2ˢ2*ˢ
A&3ˢ*0.*(4&;;5ˢ/,ˢ2!>2ˢ(&4Dˢ&41ˢ;!D*ˢ.2*ˢ
" -ˢ - ˢ2&1ˢ&4ˢ/,,!-!&;ˢ(*3!1*4-*ˢ
!4ˢ.2*ˢ 1 ˢ.2*ˢ(/5&;ˢ-&3.;*ˢ/,ˢ ,.6&ˢ&41ˢ
./ˢD.2*ˢ-2&!(ˢ&.ˢ.2*ˢ,*&3.3ˢ&41ˢ/.2*(ˢ,*3.!F
=!.!*3ˢ/,ˢ ˢ " ! ˢ5*.ˢ!4ˢ2!3ˢ(*;!>!/03ˢ
&0.2/(!.5ˢ2*ˢ(&4D*1ˢ<*;/Aˢ.2*ˢ " -ˢ
- ˢ&41ˢA&3ˢ4/.ˢ&;;/A*1ˢ./ˢ2/;1ˢ&45ˢ
70<;!-ˢ/,,!-*ˢ/(ˢ*=*4ˢ./ˢ&11(*33ˢ.2*ˢ7*/7;*ˢ
!4ˢ70<;!-ˢ !3ˢA!,*ˢ8;!D*ˢ.2*ˢA!=*3ˢ/,ˢ.2*ˢ
,!&6*439ˢ7&(.!-!7&.*1ˢ!4ˢ.2*ˢ7(!*3.2//1ˢ 0(ˢ
!4,/(6&.!/4ˢ&3ˢ./ˢ.2*ˢ1*.&!;3ˢ/,ˢ.2*ˢ/,,!-*ˢ
!3ˢ!6 7*(,*-.ˢ *,/(*ˢ.2*ˢD4/A;*1>*ˢ/,ˢ.2*ˢ
-&;*41&(ˢ<*-&6*ˢ70<;!-ˢ7(/7*(.5ˢ!.ˢA&3ˢ
.2*ˢ10.5ˢ/,ˢ.2*ˢ -ˢ ˢ./ˢ30 6 6/4ˢ
.2*ˢ7*/7;*ˢ./ˢ.2*ˢ &7!./;ˢ/4ˢ.2*ˢ-&;*413ˢ
&41ˢ4/4*3ˢ/,ˢ*&-2ˢ6/4.2ˢ&41ˢ./ˢ&44/04-*ˢ
.2*ˢ,*3.!=&;3ˢ,/(ˢ.2*ˢ6/4.2ˢ 4ˢ.2*ˢ-&;*413ˢ
2*ˢ&41ˢ.2*ˢ 1 " ˢ3&-(!,!-*1ˢ&41ˢ&.ˢ.2*ˢ
3&6*ˢ.!6*ˢ!4=/D*1ˢ &403ˢ ,ˢ.2*ˢ/.2*(ˢ
3&-(!,!-*3ˢD4/A4ˢ./ˢ03ˢA*ˢ6&5ˢ6*4.!/4ˢ.2*ˢ
1 1 ˢ/4ˢ *<ˢ@C.2ˢA2*4ˢ.2*ˢ -ˢ
ˢ3&-(!,!-*1ˢ&.ˢ.2*ˢ " ˢ&41ˢ
.2*4ˢ,;*1ˢ!4ˢ2&3.*ˢ 2!3ˢ2&3ˢ<**4ˢ*((/4*F
/03;5ˢ*07;&!4*1ˢ&3ˢ&ˢ-/6 6*6/(&.!/4ˢ/,ˢ.2*ˢ
,;!>2.ˢ/,ˢ&(:0;4!03ˢ..7*(<03ˢ.2*ˢ;&3.ˢ/,ˢ.2*ˢ
/6&4ˢD!4>3ˢ<0.ˢ!.ˢ!3ˢ6 0-2ˢ6/(*ˢ7(/<&<;5ˢ
/4*ˢ/,ˢ.2*ˢ-03./6 3ˢ2&41*1ˢ1/A4ˢ,(/6ˢ.2*ˢ
.!6*ˢ/,ˢ.2*ˢD!4>3ˢ.2*6 3*;5*3ˢ&41ˢ7*(2&73ˢ
-/44*-.*1ˢA!.2ˢ.2*ˢ70(!,!-&./(5ˢ3&-(!,!-*ˢ
,(/6ˢA2!-2ˢ.2*ˢ6/4.2ˢ/,ˢ *<(0&(5ˢ1*(!=*1ˢ
!.3ˢ4&6*ˢ .ˢ.2*ˢ*41ˢ/,ˢ.2*ˢ *70<;!-ˢ.2*ˢ
/,,!-*ˢ/A!4>ˢ./ˢ.2*ˢ7/;!.!-&;ˢ1!3&<!;!.5ˢ
&..&-2!4>ˢ./ˢ.2*ˢ2/;1*(ˢ7(/=*1ˢ04&..(&-.!=*ˢ
&41ˢA&3ˢ3/6*.!6*3ˢ;*,.ˢ04,!;;*1Mˢ<0.ˢ041*(ˢ
0>03.03ˢ!.ˢ&77*&(3ˢ./ˢ2&=*ˢ<**4ˢ(*3./(*1ˢ./ˢ
,(*6!ˢ1!>4!.5ˢ&41ˢ!4ˢ!6 7*(!&;ˢ.!6*3ˢ!.ˢ-/4F
.!40*1ˢ./ˢ*0!3.ˢ&.ˢ&45ˢ(&.*ˢ&3ˢ;&.*ˢ&3ˢ.2*ˢ
(1ˢ-*4.0(5
2,!1 6&4.253ˢ 8 &.ˢ 7(" (ˢ
/4ˢ/,ˢL*03ˢ&41ˢ 0(/7&ˢ<(/.2*(ˢ/,ˢ !4 3ˢ
*ˢA&3ˢ7(&!3*1ˢ<5ˢ&;;ˢ6*4ˢ,/(ˢ2!3ˢA!31/6ˢ
7!*.5ˢ&41ˢK03.!-*ˢ *!4>ˢ1(!=*4ˢ/0.ˢ/,ˢ (*.*ˢ
<5ˢ2!3ˢ<(/.2*(ˢ2*ˢ!3ˢ1*3-(!<*1ˢ&3ˢ2&=!4>ˢ
,;*1ˢ./ˢ.2*ˢ 3!&.!-ˢ!3;&413ˢA2*(*ˢ2*ˢ6&1*ˢ
2!3ˢ6*6/(5ˢ!6 6/(.&;ˢ<5ˢ.2*ˢA!31/6ˢ/,ˢ2!3ˢ
;&A3Bˢ 2*4-*ˢ2*ˢ!3ˢ3&!1ˢ./ˢ2&=*ˢ(*6/=*1ˢ
./ˢ - ;`&ˢ!4ˢ /*/.!&ˢ./ˢ2&=*ˢA*11*1ˢ
;-6*4*ˢ&,.*(ˢ.2*ˢ1*&.2ˢ/,ˢ 6 72!.(5/4ˢ
&41ˢ./ˢ2&=*ˢ!43.(0-.*1ˢ2*(ˢ3/4ˢ *(&1*3ˢ!4

H *(' 65.2!-&;' .(&!4' A&3' ,/(6*1' <5' .2*'
$: " '&43A*(!4>' ./' .2*' 0(*.*3'/,' .2*'
((*.&4' 2*&" .2*3*' A*(*' 3&!1' ./'&--/67&45'
2*(' /=*(' .2*' A//1*1' 2!;;3' A!.2' ;!>2.*1'
./(-2*3' &41' A!.2' A!;1' 1&4-*3' &61!' .2*'
(*3/041!4>' 603!-' /,' ,;0.*3' &41' 2/(43' &41'
G1(063'&41'-56<&;3' ,.*(' .2*3*' .2*'7(!*3.3'
"/,' 5<*;*' A*(*' &;3/' -&;;*1' /(5<&4.*3' &41'
.2*' ,*3.!=&;3'/,' .2*' >/11*33' A*(*' -*;*<(&.*1'
A!.2'3!6!;&(' /(>!*3'!4' .2*' ,(*4Q5'/,' A2!-2'
G.2*' 7&(.!-!7&./(3' A/041*1' *&-2' /.2*(' /('
;!D*' ..!3' 60.!;&.*1' .2*63*;=*3' *3!1*3'
.2*3*' .2*(*' A*(*' <*>>!4>' 7(!*3.3' -&;;*1'
2 1: ' &41' $! ' A2/' (/&6*1',(/6'
7;&-*' ./' 7;&-*' &3' !437!(*1' 3*(=&4.3' &41'
7(/72*.3' /,' .2*' (*&.' /.2*(' 4' .2*'
*;;*37/4.' &41' /4' .2*' (/7/4.!3' 2*&"
5<*;*' A&3';!D*A!3*' .2*'-2!*,'>/11*33" !4'
7&(.!-0;&(' !4' .2*' (/&1' A2*(*' 32*' A&3'
A/(32!77*1' 07/4' /04.' 1&;' &3' .2*' . '"
('&41'A2*(*' .2*' ' "'5 : '& '
,/(6*1'2*(' .(&!4' (/6' 3!&' .2!3' (*;!>!/4'
"&1=&4-*1' !4./' (**-*' ,.*(' .2*' *(3!&4'
&(3' !.' (*&-2*1' .2*43' A2*(*' !4' .2*'
' .2*' .*67;*' /,' .2*' (*&.' /.2*('
A2!-2' A&3' 03*1' &3' &' .&.*' (*-/(1"/,,!-*'
.2*(*' 3./!1' .2*' !1*&;' !6&>*' /,' .2*' >/11*33'
,&32!/4*1' <5' 2!1!&3'f &03&4!&3'!' ' `' Vg'
2*' A/(32!7' /,' 5<*;*' 1!1' 4/.' 2/A*=*('
%/<.&!4' 70<;!-' (*-/>4!.!/4' 2*(*' &45' 6/(*'
.2&4' !4' .2*' (*3.' /,' (**-*' /4' &--/04.' /,'
!.3'/(>!&3.!-'*0-*33*3'&41'.2*'/,,*43!=*'2&<!.3'
/,' !.3' <*>>!4>' 7(!*3.3' .' A&3' -0;.!=&.*1'
%/4;5<5' 7&(.!-0;&(' &33/-!&.!/43' &41' <5' .2*'
;/A*(' (&4D3'/,' .2*' 7*/7;*
4'7 ' .2*' A/(32!7' /,' .2*' (*&.' /.2*('
2& 1" ' 'A&3'!4.(/10-*1',/('7/;!.!-&;'
(*&3/43' !4' @NC' 4/' '&.' .2*' -/66&41' /,' &'
!<5;;!4*' /(&-;*' &41' ,/(' .2*' 70(7/3*' /,'
1(!=!4>' &44!<&;'/0.'/,' .&;5' 4'*6<&335'
A&3' 3*4.' ./' ,*.-2' .2*' 2/;5' 3./4*' ,(/6'
*33!403'" &',*3.!=&;' A&3',/041*1' !4'2/4/0('
/,' .2*' >/11*33'./' <*' 2*;1' /4' 7(!;'C("T 8.2*'
1 ',(/6'.2*' (**D' " 1 ' O'
1" ' 9" &41' !4' @$U' &' .*67;*' /4' .2*'
&;&.!4*' A&3' 1*1!-&.*1' ./' 2*(' 2*' 3*(F
=!-*' A&3'7*(,/(6*1'<5'&' 2(5>!&4'7(!*3.' &'
2(5>!&4' 7(!*3.*33'&41' &' 406<*(' /,' '
8*6&3-0;&.*1' 7(!*3.3' /,' 5<*;*'9' A2/' A*(*'
&;;/A*1'.?' 7&33' !4' 7(/-*33!/4' .2(/0>2' .2*'
-!.5' !4' &--/(1&4-*' A!.2' .2*!(' 4&.!=*' (!.*3'
/6&4'-!.!Q*43'A*(*',/(<!11*4'./'7&(.!-!7&.*'
!4' .2!3' 3*(=!-*' .2/0>2' .2*' 7(&*./(' /4' .2*'
&;&.!4*' &41' 7(!=&.*' 7*(3/43' &6/4>' .2*'
7&.(!-!&43'-*;*<(&.*1'.2*',*&3.'<5'*4.*(.&!4F
!4>'/4*' &4/.2*('.2*' 4*A'-0;.'<*!4>'&..&-2*1'
./' .2&.' /,' &!&' /(' 73' 2*' A/(32!7' /,'
5<*;*' >&!4*1' <5' 1*>(**3' &4' *=*("A!1*('
%*0.*43!/4'3/' .2&.' 041*(' .2*' *&(;5' 67!(*

&',(*32',*3.!=&;' A&3' !43.!.0.*1',(/6' 30(-2'
$V"@U' A!.2' .2*' /<3*(=&4-*' /,' 6/0(4!4>'
,/;;/A*1'<5'.2*' 6/3.'*0.(&=&>&4.'K/5' 4'
.2!3',*3.!=&;'&33/-!&.!/43'/,' A/6*4'&41'6*4'
&41' .2*' (*;!>!/03'</&(1'/,' .2*' T " 2'
' &' .//D' 7&(.' 4' .2*' ,!(3.' 2&;,' /,'
.2*' @41' -*4.0(5' : ' .2*' + = ' &41'
$ 'A*(*'&11*1' 4'.2*3*'-*(*6/4!*3'
.2*' 7*(3/4' -/4-*(4*1'A*4.' .2(/0>2'&' ,/(6'
/,'<&7.!36'A!.2' .2*' <;//1'/,'<0;;3'&41'(&63

D!;;*1'!4'3&-(!,!-*'A!.2' .2*' /<K*-.' /,'1*&43'
!4>'2!6',(/6'7/;;0.!/43'&41'<(!4>!4>'&<0.'
&'4*A'<!(.2' 2*' /&D'&41'7!4*'A*(*'3&-(*1'
./' 2*&" 5<*;*' &' '&3'&;3/' .2*';!/4'
2*' A&3'3077/3*1'./' .(&=*(3*' .2*'6/04.&!43'
(!1!4>' /4'&' ;! 4'/(' !4'&' -2&(!/.' 1(&A4' <5'
;!/43' 4' &(.'32*' A&3'030&;;5'(*7(*3*4.*1'
*4.2(/4*1' <*.A**4' ;!/43' A!.2' .2*' 60(&;'
-(/A4' /4' 2*(' 2*&1' &41' &' 36&;' 1(06' !4'
2*(' 2&41
2*&' !;=;&a' &0>2.*(' /,' .2*' ;<&4'
D!4>' !!6&' *(' 04-;*' 60;!03' A2/' 2&1'
1(!=*4'2!3'<(/.2*(',(/6' .2*' .2(/4*' 6&1*'
2*(' &' *3.&;' !(>!4' 3/' .2&;' 4/4*' /,' 2*('
1*3-*41&4.3'6!>2.' .&D*'=*4>*&4-*',/(' .2!3'
=!/;*4.'1**1' 2*4'2/A*=*('32*'</(*'./'
&(3' .2*' .A!43' /6!;;03' &41' *603' &41'
&3' .2(/A4',/(' .2!3'!4./' .2*' !<*(' !<*(;"

403 .2* >/1 /, .2* (!=*(6&1* 2*(2!3 A!,* --/(1!4> ./ &4 /;1*(.(&1!.!/4 .2* 6/.2*(/, .2* ,/041*(3 /, /6* A&3 ;!& 1&0>2.*(/,) 4*&3 & &41 &=!4!& 2*1& - 2

2*303 /4 /, ! 4*03 /(.(56/4 &41 /4* /, .2* 03*3 D!4> /, .2* 2(&-!&43 * -&6* ./ 2*;7 (!&6 <0. !4 .2* =*(5 4!>2. &,.*(2!3 &((!=&; <*,/(* (/5 A&3 30(7(!3*1 <5 6*1*3 &41 1533*03 &41 3;&!4 <5 .2* ,/(6*(./>*.2*(A!.2 .A*;=* /, 2!3 -/67&4!/43 A2!;* 1533*03 .//D &A&5 2!3 3A!,. 2/(3*3 /, >;!3.*4!4> A2!.*F 4*33 .2&1 <**4 7(/72*3!*1 .2&(. !, .2*3* ,*1 /4 (/K&4 ,/11*(/(1(&4D /, .2*]&4.203 <*,/(* (/5 .2* ./A4 -/0;1 4/. <* .&D*4

2*./(!- 6/4> .2* 6 (-/67(!3*1 .2* 7(&-.!-&;*&3 A*;;*&3 .2* .2*/F (*.!-&;* &(. /, 37*&D!4> &41 (1*4/.*1 &4 /(&./(4/ ;*33 .2&4 &. .*&-2*(/, /(&./(5 6/4> .2* 7 " !. 1*4/.*1 /4;5 .2* ;&..*(.2* &-.0&;*37*&D*(<*!4> -&;;*1 2* ,!(3. 6*4 A2/ (*10-*1 /(&./(5 ./ &353F .*6 -&7&<;* /, <*!4> .&0>2. &77*&(*1 &6/4> .2* !-!;!&4 (**D3 A2/ &--/(1!4> ./ .2* .*3.!6/45 /, .2* &4-!*4.3 A*(* 1!3.!4>0!32*1 ,/(.2* D**44*33 /, .2*!(041*(3.&41!4> &41 .2*!(;/=* /, 1!370.&.!/4 f !-*(/ PQZ 2* 5(&-03&4 H &, 8-* - UU - 9 !3 3&!1 ./ 2&=* <**4 .2* ,!(3. A2/ *;&</(&.*1 353.*6&.!- (0;*3 ,/(,/(*43!- 37**-2*3 &41 ;&!1 .2*6 1/A4 !4 A(!.!4> !4 & 6&40&; /4 .2* &(. /, (2*./(!- & (" !3 707!; # &# 8</(4 PFUH &41 &,.*(2!6 .2* */4.!4* 8 $ 1 &# ,0(.2*(-0;.!=&.*1 .2* &(. &41 ,(/6 &</0. PGM -&((!*1 !. ./ (**-* !.3*;, &41 !4 7&(.!-0;&(./ .2*43 4 .2* K01!-!&; 7(/-**1!4>3 &41 .2* &33*6F <;!*3 /, .2* 7*/7;* .2* 7(&-.!-* /, /(&./(5 2&1 ;/4> <**4 ,&6!;!&(&. .2*43 .2/0>2 !. 2&1 4/. <**4 (*10-*1 ./ .*-24!-&; (0;*3 &41 /(&./(5 2&1 2&1 & -/437!-0/03 (*7(*F 3*4.&.!=* !4 (. .2*43 .2* .2*/(5 /, /(&./(5 A&3 ,0(.2*(-0;.!=&.*1 <5 .2* $) # 8 ((H 6*4 A2/ 7(/,*33*1 D4/A;*1>* /(A!31/6 I9 2*!(!43.(0-./!4 !4 3.5;* &41 (2*./(!- A&3 *4F K/5*1 <5 406*(/03 .2*4!&43 A2/ 1*3!(*1 <5 .2* &!1 /, 3.015 &41 7(&-.!-* ./ &..&!4 ./ *07*(.4*33 !4 37*&D!4>

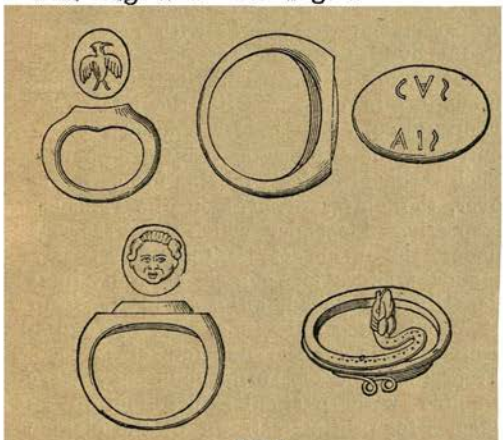
2* ,!(3. .2*4!&4 A2/ <*3!1*3 !6F 7&(.!4> !43.(0-.!/4 !4 .2* 4*A &(. &77;!*1 !. 7(&-.!-&;;5 ./ 37*&D!4> !4 .2* &33*6<;!*3 /, .2* 7*/7;* &41 <*,/(* -/0(.3 &41 A2/ 70<;!32*1 37**-2*3 &3 7&..*(43 ,/(3.015 A&3 *) 81!*1 PEEH .2* *&(;!*3. /, .2* H *4 ..!- (&./(3 l 4 2!3 *0.&4. 37**-2*3 .2* /(&./(!-&; &(. !3 32/A4 3.!;; !4 !.3 <*>!44!4>3 2*3* A!.2 .2*a 37**-2*3 !4.*(A/=*4 !4 .2* 2!3./(!-&; A/(D /, 2!3 >(*&. 707!; 20-51!1*3 >!=* &4 !1*& /, .2* -(01* &41 2&(32 3.5;* /, .2* .*-24!-&; /(&./(5 /, .2* .!6 * A2!;* .2* 37**-2*3 /, $(81!*1 &</0. TT9 .2* 3*-/41 /, .2* *4 (&./(3 1!37;&5 & 3.5;* .2&. !3 3.!;; 04!4,;0*4-*1 <5 .2* (2*./(!-&; .*&-2!4> /, .2* &>* 2* ,!(3. (*&;;5 -;&33!-&; /(&./(!3 * A 81!*1 &</0. ?N9 A2/ A2!;* !4 7/33*33!/4 /, &;; .2* .*-24!-&; (0;*3 /, .2* .!6* 2&41;*3 A!.2 7*(,*-. 6&3.*(5 .2* -/66/4 ;&4>0&>* /, *=*(5"1&5 ;!,* A $(8C ?" R9 !3 (*-D/4*1 &3 .2* ,&.2*(/, &(.!3.!- /(&./(5 7(/7*(;5 3/ -&;;*1 2* !3 & 6&3.*(!4 .2* -&(*,0; -2/!-* /, A/(13 !4 .2* (/041!4> /, &41 (25.26!-&; /(6&.!/4 /, 7*(!/13 !4 .2* &7. *67;/56*4. /, ,!>0(*3 /, 37**-2 &41 !4 *=*(5.2!4> A2!-2 ;*413 -2&(6 ./ ;&4F >0&>* 5 2!3 6&3.*(5 /, 3.5;* 2* 2&3 *O*(-!3*1 .2* 6/3. ,&("(*&-2!4> !4,;0*4-* 07/4 .2* /(&./(!-&; 1!-.!/4 /, &;; 30--**1!4> .!6* , .2* .2(** D!413 /, 37**-2*3 A2!-2 A*(* 1!3.!4>0!32*1 <5 .2* &4-!*4.3 Q 8/(" &41 (2 (8/(" 2* 37*-!&;;5 -0;.!=&.*1 .2* ;&3. 6/4> 2!3 406*(/03 707!;3 !3 3&3-3 8&</0. CNN" ?N9 A2/ !4 2!3>*4*(&; 6*.2/1 /, /(&./(5 -;/3*;5 /;;/A3 53!&3 .2/0>2 2* 32/A3 & 6/(* 6&.0(*1 3D!;; !4 .2** -/4.(/=*(3!&; 03* /, /(&./(!-&; (*3/0(-*3 2* 2!>2*3. 7/!4. A&3 &..&!4*1 <5 2!3 707!; & J .2* >(*&.*3. /(&./(/, &4.!:0!.5 8 RC" @@9 4*0. /2!6 -/6*3 2!3 7/;!.!-&; /77/4*4. 3 8 RT" $C9 2* 406<*(/, .2* *4 (&./(3 !3 -/67;*.*1 <5 .2*!(-/4.*67/(&(!*3 / * $; * ( ) &41 ( ) 4 .2* ;&3. /, .2*3* .2* <*>!44!4> /, .2* 1*-;!4* /, /(&./(!-&; &(. !3 &;(*&15 -;*&(;5 &77&(*4. / .2* .!6* /, *6/3.2*4*3 <*;/4>3 .2* /;1*3. 6&40&; /, (2*./(!- A2!-2 2&3 <**4 7(*3*(=*1 ./ 03 .2&. /,]; ,!0,!3 /, &673&-03 2!3 !3 ,/041*1 /4 .2*7(&-.!-* /, /(&./(5 &41 <*!4> !4.*41*1 ,/(!66*F 1!&* 7(&-.!-&; 03* 32/A3 4/ .(&-* /, &45 72!;/3/72!-&; >(/041A/(D /(72!;/3/72!-&; (*3*&(-2 (**D (2*./(!- /A*3 ./ !.3 7(/7*((*10-.!/4 !4 ./ & 3-!*4.!,!-* 353.*6 4 -/4.(&3. ./ 3/-(&.*3 A2/ &!63 &. 7*(,*-.!/4 /, ,/(6 &41 3.5;* (!3./,* !4 2!3 7(;&53 37*-!&; 3.(*33 /4 30<K*-."6&..*(&41 6&!4;5 1*=/.*3 2!63*;, ./ 3*..!4> ,/(.2 .2* 6*&43 /, 7(/10-!4> -/4=!-.!/4 2*4 .2*43 2&1 ;/3. 2*(;!<*(.5 7(&-.!-&; /(&./(5 A&3 6/(* &41 6/(* (*10-*1 ./ 3!;*4-* .2* 7(/10-.!/43 /, .2* ;&3. /(&./(3 30-2 &3 $& ^ -,

/(&./(3 A*(* &(-03 N) &41 !!-!03 ;-./!03 ")
2*./(!-&; !43.(0-.!/4 A&3 /(!>!4&;;5 !67&(.*1 <5 (**D3 4 .2* ,!(3.1*-&1* /, .2* $3.-*4.0(5 .2* ,(**16&4 ;/.!03 &;;03 -&6 * ,/(A&(1 &3 & .*&-2*(/, (2*./(!- &41 /.2*(&.!4 .*&-2*(3 ,/;;/A*1 2!6 2*3* ,/041 &;&(>* 406 <*(/,2*&(*(3 <0. .2* -*43/(3 !4.*(,*(*1 ./ 3./7 .2* 7(&-.!-* &3 &4 !44/=&.!/4 /4 .2* -03./6 /, .2*!(,/(*,&.2*(3 .!3 .(0* .2&. .2!3 &..*67./ /77/3* .2* -0((*4. A2!-2 2&1 &;(*&15 3*. !4 A&3 !4=&!4 .!;; !. A&3 /4;5 <5 ,(**1 6*4 .2&. (2*./(!-&;!43.(0-.!/4 !4 &.!4 A&3 >!=*4 04.!; .2* .!6 * /, 0>03.03 A2*4 .2* /6&4 D4!>2. ;&4103 A&3 .2* ,!(3. ,(**"</(4 6&4 A2/ -&6 *,/(A&(1 &3 &6<;!- .*&-2*(/,(2*./(!- =*4 .2* &.!4(2*./(!F -!&43 1*(!=*1 .2*!(.2*/(5 *0-;03!=*;5 ,(/6 (**D 3/0(-*3 *37*-!&;;5 ,(/6 *(6J><(&3 ./ A2/3* !4,;0*4-* .2* .A/ *&(;!*3. *0.&4. (2*./(!-&; A(!.!4>3 /, .2* /6&4 3-2//; &(./ <* (*,*((*1 .2*3* &(* .2* A/(D /, G %!>$ &41 .2* 5/0.2,0; 7(/10-.!/4 /, " (.2* 5 '" " " !-*(/ .2* >(*&.*3./(&./(/, /6 * &41 .2* /4;5 /(&./(%/ .2* *70<;!- /, A2/6 &45 -/67;*.* 37**-2*3 &(* *0.&4. -/67/3*1 !4 2!3 ;&.*(5*&(3 3*=*(&; /.2*(=&;0&<;* A(!.!4>3 07/4 (2*./(!-&; 30<%*-.3 ,/041*1 /4 2!3 7(&-.!-* &3 &4 /(&./(Q .2* 5 .2* &41 .2* *3!1*3 !-*(/ .2* ;&3. &>* /, .2* *70<;!-7/33*33*1 &3*(!*3 /, /.2*(-/437!-0/03 /(&./(3 30-2 &3 / :)) &41 &</=* &; B , A 6/(* (*7(*3*4.&.!=*3 /, .2* /(&./(5 /, .2* *70<;!-30(=!=*1 ./ .2* .!6 * /, 0>03.03 2* 6/3.!67/(.&4. /, .2*3* !3 3!4!03 0. A!.2 .2* /;1 -/43.!.0.!/4 .2* /--&3!/43 &41 6&.*(!&;3 ,/(/(&./(5 &;3/ 1!3&77*&(*1 041*(.2* /4&(-25 &41 .2* 2!41(&4-*3 &41 ;!6 !F .&.!/43 ./ !.3 70<;!- *0*(-!3* !4-(*&3*1 !4 .2*3&6*7(/7/(.!/4 (&-.!-* A&3 >(&10&;;5 307*(3*1*1 <5 .2*/(5 /(&./(3 <5 (2*./(!F -!&43 37**-2*3 <5 1*-;&6.!/43 2* *0" *(-!3*3 /, .2* (2*./(!-&; 3-2</;3 A2!-2 4/A <*-&6* /4* /, .2* -2!*, -*4.(*3 /, !4.*;F ;*-.0&; ;!,* 7&!1 &;6/3.*0-;03!=* &..*4.!/4 ./ .2* ,/(6 &41 1*&; A!.2 !6&>!4&(5 30<%*-.3 /, 7/;!.!-&; &41 ,/(*43!- /(&./(5 -&;;*1 &41 " A2!-2 A*(* &3 ,&(&3 7/33!<;* (*6/=*1 ,(/6 .2* 7(&-.!-* / ;!,* =!=!1 7!-.0(* /, .2*3* *0*(-!3*3 !3 7(*3*(=*1 <5 .2* (*6!4!3-*4-*3 /, .2* (2*./(!-!&4 $S S(.2* ,&.2*(/, .2*3 A*;;"D4/A4 72!;/3/72*(2* 6&44*(/ 37*&D!4> -/4.(&-.*1 !4 .2* 3-2//;3 A&3 &1/7.*1 /4 .2* ,*A /--&3!/43 /4 A2!-2 7(&-.!-&; /(&./(5 -/0;1 3.!;; <* *0*(-!3*1 &41 .2*3* /--&3!/43 A*(*&--/(1!4>;5 .0(4*1 !4./ *02!<!.!/43 /, .2*&.(!-&; 1*-;&6&.!/4 .A&3 !4 =&!4 .2&. 6*4 ;!D* T ! 4 2!3 A/(./4 .2* .(&!4!4> /, &4 /(&./(&'" &41 - .03 !4 2!3 5 1 "7/!4.*1 ./ .2* ,(0* -;&33!-&; 7&..*(43 &41 -/6<&.*1 .2* ,&32!/4 /, .2*!(.!6* ,(/6 A2!-2 *=*4 .2*5 *(* 4/.*4.!(*;5 ,(** !D* .2*3* .2* 5/04>*(* <*;/4>3 ./ .2* 41 /, .2* $3.-*4.0(5 # 2!3 , " 1: &11(*33*1 ./ (&!&4 .2* /4;5 6/404!*4. /, /6&4 /(&./(5 &,.*(!-*(/ 7(*3*(=*1 !4 &-/67;*.* ,/(6 <*-&6* .2* 6/1*;, /(.2* ;&.*(7&4*>5(!3.3 4 .2* @41 -*4.0(5 &41 .2* 3-2//; 4&6*1 &,.*(2!6 3/0>2. ./ (*=!=* .2* /;1 /6&4 37!(!. <5 &.3.*;*33 !6!.&.!/4 /, &(-2&!- *07(*33!/43 &41 ,/(63 /, 37**-2 2* 3&6* 3.5;* !3 7(&-.!3*1 .2/0>2 A!.2 6/(* &<!;!.5 <5 .2* ,(!-&4 7,.;*;03 ,.*(.2* *41 /, .2* (1 -*4.0(5 .2* /(&F ./(!-&; &(.2&1 !.3 -2!*, 3*&. !4 .2* ./A43 /, &0; *37*-!&;;5 !!! (=*3 &+ &41 /(1*&00 # 1 M *(* & 3.5;* /, /(&./(5 A&3 6&.0(*1 A2!-2 7/33*33*1 &-*(.&!4'36//.24*33 &41-/7!/034*33!4 A/(13 <0. 32/A*1 >(*&.;&-D /, !1*&3 7/4 .2* (*7(*3*4.&.!=*3 /, .2!3 3.5;* .2* H &4*>5F (!3.3 !3**) 2;&443 ,(**D 7/*.&41 >(&6 6&(!&4 &4&.!=* /, *4* !4 (*.* !4 .2* ;&..*(2&; , /, .2* (1 -*4.0(5 4 2!3 5/0.2 2* A&3 &3;&=* &41 .2* /=*(3**(/, & # !4 2!3 ;&.*(;!,* 2* A(/.* !4 .2* ;*&(4*1 6&44*(/, .2* ;*0&41(!4*3 <*3!1*3 *7!F >(&63 &4 406<*(/, *7!-3 .2*3* .2* 6/3.,&6/03 A&3 .2* !;,*33>4#1\-&-*;*<(&.!4> !4 3!0 <//D3 .2* 3*-/41 *33*4!&4 &(&41 !.3 65.2!-&; 2*(/ (!3. 6>4*3 *3!1*3 &4 *7!-, (&>6*4. A* 3.!;; 7/33*33 *;*=*4 /, 2!3 *7!>(&63 B!4.2/4 (**D -/6!-7/*. 3/4 /, & 7/..*(/, &(*4.06 A2/ ;!=*1 &</0. NN &41 !4=*4.*1 &3.5;* /, -/67/3!.!/4 /, 2!3 /A4 A2!-2 A&3 60-2 1!,,03*1 !4 &>4& (3*-!& &41 !3 3&!1 ./ 2&=* <**4 !6!.&.*1 *=*4 <5 .2* /6&43 . A&3 -&;;*1 .2* < 1 ! * -2**(,0; .(&>*15 . A&3 &.(&=*3.5 /, .(&>!- 65.23 <5 .2* !4.*(F 6!0.0(* /, -/6!-3-*4*3 2* 3-&4.5 ,(&>F 6*4.3 /, .2* .2!(.5"*!>2. 7;&53 /, 2!&40* 1/ 4/. >!=* 03 &45 &1*:0&.* !1*& /, .2!3 D!41 /, -/67/3!.!/4 2/*-43 (**D &(.!3. / J6?3 &</0. VNN !4=*4./(/, <(&33",/041!4> &41 &(-2!.*-. /, .2* -*;*<(&.*1 .*67;* /, J(& !4 2!3 4&.!=* !3;&41 f *(/1 !!! ?N% # (( ) &41 $( )

Rhȳtŏn. A kind of drinking-horn. (*See* VESSELS.)

Rĭcĭnĭum. A covering for the head worn by the Roman women. (*See* CLOTHING.)

*** Rings:** Among the Greeks and Romans these were worn originally only as signet-rings on the fourth finger of the left hand. Among the Romans of the olden time, as among the Spartans, they were exclusively of iron. Then golden rings came in as distinguishing marks of senators and magistrates, and afterwards also of knights. It was only in the course of the imperial age that the golden signet-ring lost its original meaning, and became finally a sign of free birth, or of the privileges thereto attached. Extravagant sums were paid for ornamental rings, the value of which consisted partly in the stone itself, partly in the art displayed in the stone-cutting. Among the Greeks this kind of luxury arose at an early time; among the Romans it began only in the last years of the Republic, while it considerably increased under the Empire. Men, as well as women, used sometimes to wear rings on all their fingers.



RINGS.

Roads. The earliest levelled roads in Greece were the "sacred ways." These led to the most important religious centres, where national festivals were celebrated, such festivals also serving the purpose of public markets or fairs. In general, the Greeks set a high value on excellent and well-levelled roads, which made travelling easy. But, in the best days of Greece, only unpaved roads were known, paved roads being of comparatively late origin.

The grandest work in ancient road-making was that done by the Romans, who, mainly for military purposes, connected Rome with her newly acquired provinces by means of high-roads. They laid out their roads as far as possible in straight lines. The nature of the ground is almost entirely disregarded; where mountains intervened they were broken through, and interposing streams and valleys were spanned with bridges and viaducts.

The first Roman high-road, which, even in its present condition, is worthy of admiration, was the *Vĭă Appĭă*, so called after the censor Appius Claudius, who constructed it. It was made in B.C. 312 to join Rome to Cāpŭa, and was afterwards continued as far as Brundĭsĭum. This "queen of roads," as it is called [by Statius, *Silvæ* ii 2, 12, *Appia longarum teritur regina viarum*], was a stone causeway, constructed, according to the nature of the country, with an embankment either beneath or beside it, and was of such a width that two broad wagons

(1) * VIA APPIA, NEAR ARICCIA.
(Canina, *Arch. Rom.*, tav. 183.)

could easily pass each other. [Fig. 1 shows part of this road below the village of *Ariccia*, where it runs for a considerable distance on an embankment faced with freestone, and with massive balustrades and seats on both sides, as well as vaulted openings in the basement to serve as outlets for the mountain streams.] The surface was paved with polygonal blocks of hard stone, generally basalt, fitted closely together, and so laid down that the centre of the road was at a higher level than the sides, to allow

(2) * PAVEMENT OF VIA APPIA.
(Piranesi, *Antichità di Roma*, iii 7.)

the rain-water to run off. [Fig. 2 shows the construction of the pavement.] According to a subsequent method, the

Roman roads first received a foundation of rubble or *breccia*, on which rested a layer of flat stones 8 inches thick; above this was an equally thick layer of stones set in lime, which was covered by another layer of rubble about 3 inches deep; above the rubble was laid down the pavement proper, consisting of either hard stone (*sīlex*) or else irregular blocks of basaltic lava.

In the time of the emperor Hadrian, the cost of constructing such a road amounted to £900 per Roman mile (about 1·5 kilom. = about ⅞ English mile). From the end of the 2nd century B.C. posts set up at distances of 1,000 paces from each other served to measure distances. (*See* MILIARIUM.)

The making and maintenance of the roads in Italy were provided for at the expense of the *ærārĭum*, or State-treasury. During the republican age the roads were under the supervision of the censors. From the time of Augustus they were under imperial officials entitled *cūrātōrēs vĭārum*. In the provinces, in general, the cost of the military roads, and indeed of all public works, was defrayed out of the provincial taxes. In the imperial provinces soldiers were also frequently employed in constructing roads. In a few cases toll was levied by special imperial permission.

Rōbīgus, the male, **Rōbīgo**, the female deity among the Romans who protected the corn from blight (*robigo*). On April 25th a festival called the *Rōbīgālĭa*, supposed to have been instituted by Nŭma, was held in their honour in their grove, distant nearly five miles from Rome. The citizens marched to the spot in white festal attire, under the conduct of the *flāmen Quĭrīnālĭs*, *Robigus* having at first apparently represented only a particular function of Mars (or Quĭrīnus), as protector of the arable land. After a prayer, accompanied by offerings of incense and wine, for the preservation of the ripening seed, the *flamen* offered sacrifice with the entrails of a young sorrel dog and a sheep. Certain races were also held.

Rōma (*Dĕa Rōma*). The personification of the world-ruling city, first worshipped as a goddess by some cities of Asia Minor in the 2nd century B.C. She was represented under the image of a Tўchē (*q.v.*), with the mural crown on her head and with all the attributes of prosperity and power. Under Augustus her cult in the Hellenic cities was united partly with that of Augustus, partly with that of the deified Cæsar, *Dīvus Iūlius*. In Rome she was always represented in military shape, sometimes like a Mĭnerva, sometimes like an Amazon. On the obverse of silver coins she appears with a winged helmet (*see* cuts).

HEAD OF ROMA.

Between the old Forum and the Colosseum Hadrian erected a handsome double temple in honour of Roma and of Vĕnus, as ancestress of the Roman people. This was consecrated on April 21st, the day of the foundation of Rome and the festival of the *Pārīlia*. (*See* PALES.) It was afterwards called the *templum urbis*. The ruins still remain. For the site, *see* plan of the Roman Fora under FORUM; for a restoration of the interior, *see* ARCHITECTURE, fig. 13.

Romance. Romantic narratives, especially of imaginary adventures of travel, appear among the *Greeks* with particular frequency after the time of Alexander the Great, owing to Greece having then been brought into contact with the East (*see* EUHEMERUS); but these are known to us only by their titles and by fragments. Such ethnographical fables form, moreover, the oldest element in the romance respecting Alexander which is preserved under the name of CALLISTHĔNĒS. By earlier writers love-stories are only incidentally introduced, although in the form of popular local legends they were disseminated in all the districts of Greece. From the time of Antĭmăchus they were adopted with particular predilection as themes for poetic treatment by the elegiac poets, especially in the Alexandrine age. There is extant a prose compilation of such legends collected from historians and poets by the poet PARTHĔNIUS in the time of Augustus.

The earliest example of prose narratives of the amatory type is the "Milesian Tales" (*Mīlēsĭăca*) of ARISTĪDĒS of Mīlētus (about 100 B.C.), which are regarded as forerunners of the later love-romances. Even in the earliest example of such a romance which is known to us (at least as to its general contents), the *Wonders beyond Thūlē* of Antonius DIŎGĔNĒS (probably in the 1st century A.D.), there appears that combina-

.!/4 / ,&4.&3.!- &1=*4.0(*3 /, .(&=*; A!.2 &. &;*/, ;/=* A2!-2 !3 -/6 6 /4 ./ &;;.2*;&.*(/6&4-*3 &;6/3. A!.2/0.*OF -*7.!/4 2!3<(&4-2/,;!.*(&.0(* &6* ./ 6&.0(!.5!4.2* &>* /, .2*;&.*(/72!3.3 A2/ &6/4> .2*!(/.2*(;!.*(&(5 *0*(-!3*3 A(/.* &6&./!5 -/67/3!.!/43 !4.2*,/(6 /, ;&((&.!=*3 &41;*..*(3 *7/33*33 A/(D3 ,.2!3 D!41<5 A $ ((A /5 41 2!3 !6!.&./(! D 4* /, 2* /;1*3. /, .2* (/6&4-*3 A2!-2 7(!4> (/6 .2!3 .!6* !3 .2&./, .2* 5(!&4 A & E ! ; 8!4 .2* @41 -*4.0(59 *4.!.;*1 " 2!3 !3 *0.&4. /4;5 !4 &4 !7!./6* 2* (/6&4-*3 /,],!&3 /, 72*303 /?A5 5) /, 6`3& $. !) /, ;*0&41(!& &41 , 'A 5 /, 72*303 &(* *0.&4.!4 &-/6B !;*.*,/(6 6/4> .2*3* .2&./, *;!/ !/(03 !3 1!3.!4>0!32*1,/(!.3 &(.!3.!-&41 D!;,0;7;/. &41 .2 7&3./(&;(/6&4-* /P K/4>03,/(!.3 7/*.!-&; 6*(!. 2* .(*&"# &*4./, .2*3* (/6&4-*3 !3 ./ &/43!1*(&<;* 0.*4. 3D*.-2*1 /0. !4 &--/(1&4-* A!.2 &!O*1 7&..*(4 &41 -/43!3.3 /,&3!67;* 60;" !7;!-&!4/, 30--*33!=* &1=*4.0(*3 A?/=*(3 &(* 3*7&(&.*1 <5 04./A&(1 -2&4-*3 '*4*(&;;5 (/<<*(3 <5 ;&41 &41 3*&# &41 !. /4;5 &,.*(6&4!,/;1 .(!&;3 &41 A/41*(,0; *07*(!*4-*3 !4 3;&=*(5 &41 !4 3.(&4>* ;&413 ".2&.2*5 &(* ,!4&;;5 /4-* 6/(* 4!.*1 4 .2* 7/4(.(&5&;/, ;/=* .2*5 1*;!<*(&.*;5 *41*&=/0(./ -&.-2 .2* 37!(!./, .2* ;*OF &41(!4** ;*>5 .2* ;&4>0&>* !3 .2*&(.!,!-!&; &41 &,,*-.*1;&4>0&>* /, .2* 3/72!3.!-&>* 0-2 H 1(&6&3 I &3 .2* ;&.*(A(!.*(3 -&;; .2*6 A*(* &;3/,(*:0*4.;5 /67/3*1 !4 .2* 5Q&4.!4* 7*(!/1 1 <5) A A) 6/4> .2* " .2* *&(;!*3.A/(D /, .2* D!41 A&3 .2* .(&43;&.!4/, .2* 2 /, (!3.!1*3<5 !3*44&8&</0.'UN ' ,/(.2!3 (*&3/4 .2* /6&4 *7!.2*., /(& (/6&4-* !3 2* 6/3.!67/(.&4. &41 .2* /4;5/(!>!4&;7(/10-.!/4 !3 .2* 3&.!F (!-&; (/6&4-* /, 6&44*(3 /, - 5 . 6!11;* /, .2* $3.-*4.0(5 9 2!3 A/(D A2!-2 !3 04,/(.04&.*;5 7(*3*(=*1 /4;5 !4 ,(&>6*4.3 !3 /, & D!41 A2!-2 2&3 4/ 7&(&;;*;!4 (** D ;!.*(&.0(*

H"& .*&.dg 4-!*4. .&;!&4 7&3./(&; 1*!.!*3 A2/ 7(/.*-.*1 .2* 30-D;!4>-&..;* &41 (*-*!=*1 /,,*(!4>3 /, 6!;D G 4 /6 *.2*!(3&4-.0&(5 3.//1 &.2* ,//. /, .2* &;&.!4* !;;!4.2* 4*!>2</0(2//1 /, .2* .!7*(-&;* !4 .2* 3&6* 7;&-* A&3 .2* 06!4&; ,!> .(** 87(/<&<;5 &7(!6!.!=* *6<;*6B /, .2* 40(.0(!4> >/11*33 f.2* 9 " / , =!1 A !!C$@g 041*(A2!-2 /6,;;03 &41 603 A*(* 3&!1 ./ 2&=* <**4 30-D;*1 <5 .2* A/;,

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&< "Q!43 2(&-!&4 &41 2(5>!&4 1*!.5 A2/6 .2* (**D3 030&;;5 !1*4.!,!*1 A!.2 !/45303 f !/1/(03 !=Cg &41 3/6*F .!6*3&;3/ A!.2 L*03 !3/(>!&3.!-A/(32!7 A&3=*(5-;/3*;5-/44*-.*1 A!.2 .2&./, .2* 2(5>!&4 /.2*(/, .2* /13 2*&" 5<?;* &41 /, ..!3 ;/4> A!.2 .2!3!. A&3!4.(/F 10-*1 !4./ .2*43 !4 .2* V.2 -*4.0(5 / f (!3./72&4*3 = T ; : RR" *F 6/3.2*4*3 5 $ `@?Ng 4 ;&.*(.!6*3 !. A&3 A!1*;5 37(*&! !4 /6* &41 .&;5 *37*-!&;;5 !4 .2* ;&..*(1&53 /, 7&>&4!36 !D*6&45 /, .2* /(!*4.&;1*!.!*3 2* (*7(*F 3*4.*1 .2* ,;/0(!32!4> ;!,* /, 4&.0(* A2!-2 3!4D3 !4 1*&.2 &;A&53 ./ (!3* &>&!4 3 &4 *6<;*6 /, .2* 5*&(;5 (*4/=&.!/4 /, 4&.0(* .2* 356</; 37*-!&;;5 &77(/7(!&.*1 ./ 2!6 A&3 .2* 34&D* --/(1!4>;5 &.2* -*;*<(&.!/4 /, 213 653.*(!*3 &>/;1*4 34&D* A&3 7&33*1 041*(.2* -;/.2*3 &41 1(&A4 /=*(.2* </3/6 /, .2* !4!.!&.*1 f ;*6*4. /, ;*0&41(!& , 7 ? 4 .2* $(/ , 2*/72(&3.03 A2*4 .2* "5 H 3**3 &3*(7*4. !4 2!3 2/03* !,!. <* .2* (*1 34&D* 2* A!;;!4=/D* &<&Q!03 I 8OO=!!! *1 *<<9 g

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`-*;;06 2* &.!4 4&6* ,/(& 36&;; 3&4-.0&(5 A2!-2 A&3 & 6*(* &;.&(/(&4 !4-;/3*1 04-/=*(*1 7;&-* A!.2 &4 &;.&(/(&;!..;* .*67;* A!.2 *!.2*(&4 &;.&(/(&4 !6&>* ,/(70(7/3*3 /, A/(32!7 4 /6*.2* >(*&.*(7&(./,.2*3* 3&4-.0&(!*3 A*(* &6/4> .2* /;1*3. &41 2/;!*3.7;&-*3 /, A/(32!7

R-*(1?3# " , &.!4>(&6F 6&(!&4 7*(2&73 /, .2* *41 /, .2* (1 -*4F .0(5 'A(/.*!4 /6* &4 1 !4 .2(** </D3 2* .2!(1 .(*&.3 /, 6*.(*

&-(& 2* &.!4 .*(6 ,/(&;; .(&43F &-.!/43 (*;&.!4>./ .2* A/(32!7 / , .2* >/13 *37*-!&;;5 3&-(!,!-* &41 7(&5*(2*5 &(* *!.2*(2*,/(6*(A*(* 041*(.&D*4 /4<*2&;,/ , .2* !41!=!10&; 25 2!63*;, /4 <*2&;, /, .2* ,&6!;5 <5 .2* = /(/4<*2&;, /, .2* 1 " <5 .2* A2/;* </15 /, .2* 1 " 2* -*4.(* /, .2* 1/6*3.!-3*(=!-* /, .2* >/13 !3 ,/(6*1 <5 .2* A/(32!7 *, .2* , " &41 ; 4 7&(.!-0;&(-&3*3 (*-/0(3* A&3 &;3/ 2&1 ./ -*(.&!4 37*-!,!*1 1*!.!*3 *3!1*3 .2!3 7(!=&.* A*(* &..&-2*1 ./ 7&(.!-0;&(,&6!;!*3 .2*3* 7&33*1 ./ .2* 2*!(A!.2 .2* 0--*33!/4 &41 <*-&6* & <0(1*4 /4 2!6 *4-* &4 !42*(!.&4-* A!.2/0. #(" D 7(/=*(<!&;;5 3!>4!F ,!*1 &4 04!67&!(*1 7!*-* /, >//1 ,/(.04* f ;&0.03 $ UU?+ " CR g 3 .2* ,&6!;5 2&1 3/ &;3/ 2&1 .2* 1 " # A2!-2 2&1 &(!3*4 /0. /, .2* ,&6!;5 <5 *07&43!/4 2*3* A*(* 7*(,/(6*1 <5 &3&-(!,!-!&; 7(!*3. # " &77/!4.*1 ,(/6 &6/4> .2* 1 " .2* -*;*<(&./4 .&D!4> 7;&-* !4 2!3 /A4 2/03* /(!4 & 37*-!&; !4 .2* 7(*3*4-* /, .2* &33*6<;*1 1 " 2* A*(* 041*(F .&D*4 -/;;*-.!=*;5 8$g <5 .2* 1 / (!4./ A2!-2 .2* -/6F 604!.5 A&3 1!=!1*1 A2*4-* 30-2 3&-(!,!-*3 A*(* -&;;*1 / /(8@g <5 .2* !41!=!10&; 1 " &41 3/-!*.!*3 # $ ./ A2!-2 .2* 307*(!4.*41*4-* /, & 7&(.!-0;&(-0;. 2&1 <**4 -/66!..*1 <5 .2* .&.*/(8 g <5 .2* 6&>!3.(&.*3 &41 7(!*3.3 /, .2* /6&4 .&.* 2* /, .2* 1 " A*(* A!.2 ,*A* *0-*7.!/43 7*(,/(6*1 !4 70<;!- .2/0>2 .2* 60;.!.01* 7(*3*4. (*6&!4*1 3!;*4. 37*-.&./(3 /4;5 !4 & ,*A -&3*3 .2*5 .//D 7&(. !4 .2* 7(/-*33!/4 ./ .2* 7;&-* /, A/(32!7 /(!4 .2* 3&-(!,!-!&; ,*&3.

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8 g !' ^; ' ' $ '
8 (/6'C' ZB//72&>.]<!4'.2*';!/0=(*9

(*:0!(*1' 4' 6&45'-0;.3'1!,,*(*4.'-(*&.0(*3' A*(*' -/6<!4*1',/(' 3&-(!,!-*M 1' &' <0;;' &' 32**7' &41' &' 7!>' 8-K7 ' $) [+) ' /(' &' 7!>' &' <0-D' &41' &' (&6' &41' .2*' ;!D*' 4' .&.*' 3&-(!,!-*3' =!-.!63' A*(*' 3/6*.!6*3' 3&-(!,!-*1' !4' >(*&.' 406<*(3" 1' &.' .2* .2*4!&4',*3.!=&;'!4' -/66*6/(&./!4'/,' .2*' =!-./(5'&.' &(&.2/4'VNN' >/&.3'A*(*' 3;&!4' &$ ' / (& ' ' 06&4' 3&-(!,!-*3' &3' &' 6*&43' /,' *07!&.!/4' A*(*' 4/.' 04D4/A4' ./' .2*' *&(;!*3.' (**D' &41' /6&4' A/(32!7' &41' -/4.!40*1' !4' -*(.&!4' -&3*3' &1' &.' .2*' ,*&3.' /,' .2*' 5-33&4' L*03' &41' /,' 07!.*(' &.!&(!3' 04.!;' .2*' !676B!&;' 7*(!/1" 2/AF *=*(' A2*(*' .2*5' -/4.!40*1' ./' *0!3.' -(!6!F 4&;3' A2/' A*(*' !4' &45'-&3*' 1//6*1' ./' 1*&.2' A*(*' 3*;*-.*1' &41' !4' 6&45' 7;&-*3' /77/(F .04!.5' A&3',0(.2*(' >!=*4' .2*6',/(' *3-&7* 4'>*4*(&;'!.' A&3' -/43!1*(*1' .2&.' 70(!.5' !4' 3/0;' &41' </15' A&3' &4' !41!37*43&<;*' (*:0!(*6*4.',/(' &' 3&-(!,!-*' .2&.' A&3' ./' <*' &--*7.&<;*' ./' &' 1!=!4!.5' --/(1!4>;5'.2*' /,,*(*(' A&32*1'&.';*&3.' 2!3' 2&413' &41',**.' &41' &77*&(*1' !4' -;*&4' 8,/(' .2*' 6/3.' 7&(.' A2!.*'g (/<*3' 4*' A2/' 2&1' !4-0((*1'<;/1"' >0!;.!4*33' -/0;1' 4/.' /,,*(' 3&-(!,!-*' &.' &;;" 2*' A2/' 2&1' 7/;;0.*1' 2!6 3*;,' <5' ./0-2!4>' &45.2!4>' 04-;*&4' 7&(.!-0;&(;5' &' -/(73*' 4**1*1' 37*-!&;' 70(!,!-&.!/4' <5' ,06!>&.!/4' (*-&0.!/43' A*(*' &;3/' .&D*4' ./' !430(*' .2*' A!.21(&A&;' /,' &;;' 7*(36!&' A2/' 6!>2.' <*' /.2*(A!3*' 047;*&3K4>' ./' .2*' 1!=!4!.5' ,(/6

6&45 3&-(!,!-*3 A/6*4 A*(** *0-;01*1 ,(/6 "/.2*(3 6*4 ,(/6 6&45 3;&=*3 &41 ,(**16*4 . /6*! !4 *&(;5 .!6*3 &;;' 7;*<*!&43 A*(** *0-;01*1 <5 .2** 7&.(!-!&43

2** =!-.!63 A*(** >*4*(&;;5 1*-D*1 /0. A!.2 (!<</43 &41 A(*&.23 &41 3/6*.!6*3 .2** -&..;** 2&1 .2*!(2/(43 >!;1*1 ,' .2** -(*&.0(** =/;04.&(!;5 ,/;;/A*1 ./ .2** &;.&(G/(*=*4 </A*1 !.3 2*&1 .2!3 A&3 -/43!1*(*1 &3 &' ,&=/0(&<;** 3!>4 !.' A&3 &4 04,&=/0(F &<;** 3!>4 !,' !.' / , * B (*3!3.&4-** /(. (!*1 ./ *3-&7** 4 .2&.' -&3B A!.2 .2** /6&43 .2** /<\(*-.' /,' .2** 3&-(!,!-** A&3 1** 6*1 ./ /<** ,(03.(&.*1 6/4> .2** 6 .2/3** A2/ ./D 7&(.' !4 .2** 3&-(!,!-** A/(** A(*&.23 &' ,!(*<(&41 ,(/6 .2** &;.&(A&3 1!77*1 !4 A&.*(' &41 A!.2 .2** A&.*(.203 -/43*-(&.*1 .2*5 37(!4D;*1 .2*63*;=*3 &41 .2** &;.&(' 2*5 .2*4 3.(*A*1 .2** 2*&1 /,' .2** =!-.!6 A!.2 <&D*1 <&(;*5">(&!43 &41 -&3.376 ** 2&!(3 -0. ,(/6 !.3 2*&1 !4./ .2** 3&-(!,!-!&;' ,!(* ,.*(.2/3** 7(*3*4.' 2&1 <**4 -&;;*1 07/4 ./ /<(3*(=** &1*=/0.' 3!;*4-* &41 &=/!1*=*(5.2!4> .2&.' 6!>2.' 6&(.2** 3/;*6 4!.5 ,' .2** /--&3!/4 .2** >/13 A*(** !4=!.*1 &6!17.' .2** 3/041 /,' ,;0.*3 /(256 43 304> ./ .2** ;5(** &41 1&0<!4> ./ &--*7.' .2** 3&-(!,!-** 7(/7!.!/03;5 ' 2** 2&413 /,' .2** A/(32!77*(3 A*(** (&!3*1 /(*0.*41*1 /(7/!4.*1 1/A4A&(13 &-F -/(1!4> &3 .2** 7(&5*(A&3 6&1** ./ & >/1 /,' 2*&=*4 /,' .2** 3*& /(/,' .2**;/A*(A/(;1 (*37*-.!=*;5 2** =!-.!6 A&3 .2*4 ,*;;*1 ./ .2** >(/041 A!.2 &6&-** /(& 2&.-2*.' &41 !.3 .2(/&.' -0. !.2 .2** 3&-(!,!-!&;' D4!,** 0(!4> .2!3 /7*(&.!/4 .2** &4!6&;3 2*&1 A&3 2*;1 07 !,' .2** 3&-(!,!-** <*;/4>*1 ./ .2** 077*(>/13 &41 </A*1 1/A4 !,' !.' <*;/4>*1 ./ .2/3** /,' .2**;/A*(A/(;1 /(.2** 1*&1 2** <;//1 -&0>2.' ,(/6 !.' A&3 !4 .2** ,/(6*("-&3** 7/0(*1 (/041 .2** &;.&(B !4 .2** ;&..*(!4./ & 1!.-2 4 .2** -&3** 03. 6*4.!/4*1 .2** 3&-(!,!-** A&3 *4.!(*;5<0(4*1 8&41 .2!3 A&3&;3/ .2** (0;** A!.2 &4!6&;3 A2!-2 A*(** 4/.' *1!<;9 &41 .2** &32*3 A*(** 7/0(*1 !4./ .2** 1!.-2 4 3&-(!,!-*3 ./ .2** >/13 /,' .2** 077*(A/(;1 /4;5 -*(.&!4 7/(.!/43 A*(** <0(4*1 ./ .2** >/13 30-2 &3 .2!>2"</4*3 /(-2!4*"</4*3 -0. /,' .2** =!-.!6 3/6** /,' .2** *4.(&!;3 /(3/6** 7!*-*3 /,',;*32 A!.2 &;&5*("/,',&.' (/;;*1 (/041 .2** A2/;** ./>*.2*(A!.2 ;!<&.!/43 /,' A!4** &41 /!;' ,(&4D!4-*43* &41 3&-(!,!-!&;' -&D*3 2** (*6&!41*(&,.*((*F 6/=!4> .2** >/13 7/(.!/4 &3 !.' A&3 -&;;*1 ,/(.2** 7(!*3.3 *4>&>*1 !4 .2** 3&-(!,!-** A&3 *!.2*((/&3.*1 &.' /4-** ,/(.2** 3&-(!,!-!&;' <&4:0*.' &41 3/ -/430 6*1 /(.&D*4 2/6** *3.&;' 3&-(!,!-*3 &.' .2** 70<;!-' *07*43** A*(** G/,.*4 -/6<!4*1 A!.2 & 70<;!-' 6*&;' &-(!F ,!-** A&3 6&1** ./ .2** >/13 /,' .2** 077*(&!(!4 .2** 6/(4!4>* ./ .2/3** /,' .2** ;/A*(A/(;1 !4 .2** *=*4!4>

6/4> .2** 7 (" &3&6/4> .2** (**D3 (*=*(*4.3!;*4-** 7(*=&!;*1 10(!4> .2** 3&-(!F ,!-!&;' /7*(&.!/43* !4 -&3** & -&(*;*33 A/(1 32/0;1 <*-/6** &4 *=!;' /6*4 &41 ./ 7(*=*4. &45 1!3.0(<&4-** <5 *0.*(4&;' 30((/041!4>3 & ,;0.*"7;&5*(7;&5*1 &41 .2** /,,*(*(/,' .2** 3&-(!,!-** 2!63*;' =*!;*1 2!3 2*&1 10(!4> .2** (!.* 2** 7(&5*(,/(60;&.*1 <5 .2** " E &41 4!4.*;;!>!<;** ./ .2** 7(!*3.3 .2*63*;=*3 ,(/6 !.3 &(-2&!-' ;&4>0&>** A&3 (*7*&.*1 <5 .2** =/.&(5 &,.*(.2** 7(!*3. A2/ (*&1 !.' ,(/6 & A(!..*4 ,/(6 &3 &45 1*=!&.!/4 ,(/6 .2** *0&-.' A/(13 6&1** .2** A2/;** 3&-(!,!-** /,' 4/ &=&!;' 3 & (0;** .2** A/(32!77*(.0(4*1 2!3 ,&-** ./ .2** *&3. /(' !,' .2** -*(*6/45 .//D 7;&-** <*,/(** .2** .*67;** ./ .2** !6&>** /,' .2** 1!=!4!.5 >(&37!4>' .2** &;.&(A!6 2!3 2&413 &41 A2*4 .2*n 7(&5*(A&3 *41*1 ;&!1 2!3 2&413 /4 2!3 ;!73 &41 .0(4*1 2!63*;,(/6 ;*,.' ./ (!>2.' 8!4 6&45 -0;.3 ,(/6 (!>2.' ./ ;*,.9 /(&>&!4 A&;D*1 (/041 .2** &;.&(&41 .2*4 3*&.B 2!63*;,' 2*4 .2** =!-.!6 3*F ;*-.*1 &3 <*!4> A!.2/0.' <;*6!32 A&3 -/43*F -(&.*1 .2** 7(!*3.37(!4D;!4> 3&;.*1 >(&43 /,' 1(!*1 &41 7/041*1 37*;.' & &41 7/0(!4> A!4** ,(/6 &' -07 07/4 !.3 2*&1 &41 &;3/ !4 -*(.&!4 3&-(!,!-*3 -0..!4> 3/6** /,' .2** 2&!(3 /,,'!.3 2*&1 &41,!4&;;5 6 J 6 >&3.(/D** A!.2 2!3 D4!,** &;/4> .2** <&-D /,' .2** -(*&F .0(* ,(/6 !.3 2*&1 ./ !.3 .&!;' &..;** A*(** D!;;*1 A!.2 .2** 6&-** -&;=*3 A!.2 .2** 2&6F 6*(' 36&;' &4!6&;3 A!.2 .2** D4!,** <5 .2** 7(!*3.3 &..*41&4.3 &77/!4.*1 ,/(.2** 70(F 7/3** ./ A2/6 &;3/ .2** 1!33*-.!/4 /,' .2** =!-.!63 A&3 &33!>4*1 ,' .2** !437*-./(3 /,' 3&-(!,!-** 83** ,*43]9 1*-;&(*1 .2&.' .2** *4.(&!;3 &- -0.' /0.' A!.2 .2** D4!,** 'A/(** 4/.' 4/(6&;' .2!3 A&3 &3!>4 .2&.' .2** /,,*(!4> A&3 4/.' 7;*&3!4> ./ .2** 1!=!4!.5 &41 !,' !.' A&3 &6&;** &4!6&;' A2!-2 2&1 <**4 7(*=!/03B 3;&0>2.*(*1 &,*6&;** A&3 4/A D!;;*1 ^' .2** *4.(&!;3 &>&!4 7(/=*1 04,&=/0(&<;** .2** 3&-(!,!-** A&3 (*>&(1*1 &3 /,' 4/ &=&!;' 4 .2** /.2*(2&41 !4 .2** -&3** /,' 7(/1!>!*3 3&-(!,!-*3 *(** /,,*(*1 04.!;,&=/0(&<;** 3!>43 &77*&(*1 4 /.2*(3!4"/,,*(!4>3 .2*(** A&3 4/!437*-.!/4 /,' *4.(&!;3 !4"/,,*(!4>3 A*(** *!.2*(*4.!(*;5<0(4*1 /(>!=*4 ./ .2** 7(!*3.3 .2*(A!3** .2** ,;*32 A&3 *&.*4 <5 .2** /,,*(*(3 &41 /4;5 .2** *4.(&!;3 A2!-2 A*(** (/&3.*1 /4 37!.3 /(</!;*1 A*(** /,,*(*1 07 ./>*.2*(A!.2 7&(.!-0;&(7/(.!/43 /,' .2** 6*&.' 1!4 .2** 7(/7*(A&5 &41 7;&-*1 !4 & 1!32 07/4 .2** &;.&(' &,.*(<*!4> 37(!4D;*1 A!.2 &41 A!4* 2** 3;&0>2.*(/,' .2** =!-.!6 ./D 7;&-** !4 .2** 6/(4!4> A2!;3.' .2** - A*(*

/,!,*(*1 &, *=*4!4>, .2** !4.*(=*4!4>, .! 6 *, <*" !4>, .&D*4 07 <5 .2** 7(/-*33 /, 7(*7&(&.!/4 &*-!!; !(*3 !87(/K.*(;KB ; D " ! /(+ " " 2** H *-0;&(&6*3 I &(/3** ,(/6 3/6 *>*4.!;** 3&-(!,!-*3 /, .2** &;*(!&4 ,&6!;5 A2!-2 A*(** /,,*(*1 ./ .2** >/13 <*F 4*&.2 .2** *&(.2 &. .2** + " 8/(+ "2 " &37/. !4 .2** &6703 &(.!03 A2*(** =/;-&4!-, ,!(** 36/0;1*(*1 2**, ,!(3. -*;* <(&.!/4 /, .2** + " " /, A2!-2 .2*(** !3 &-.0&, *=!1*4-** ./!D 7;&-** @CT <5 .2** 1!(*-.!/4 /, .2** !<5;;!4** </!D3 !4 2/4/0(/, !3 &41 (/3*(7!4* A!4>, ./ .2** =/A .2*4 6&1* ./ (*7*&. .2*6 &. .2** <*>!44!4>, /, *=*(5 7*(!/1 /, /4** 2041(*1 5*&(3 .2*5 A*(** -&;;*1 .2** H *-0;&(&6*3 I !D** &;;-0;.3 7(*3-(!<*1 <5 .2** !<5;;!4** </!D3 .2*5 &(** /, 4/4 /6&4 /(!>!4 <*!4> !4, &-. </(((/A*1, (/6 .2** .(03-&43 A2/ &. .2** -/4-;03!/4 /, & 6*&4 7*(!/1 /, $NN 5*&(3 (*-D/4*1 &--/(1F !4>, ./ .2** ;/4>*3. 206&4 ;!,** !4 & >*4*(&F .!/4 03*1 ./ 7(*3*4. &4 *07!&./(5 /,,*(!4> /4 <*2&;, /, .2** 4*A >*4*(&.!/4 ./ .2** >/13 <*4*&.2 .2** *&(.2 2** >&6*3 3**6 ./ 2&=** <**4 4*0. 2*;1 4/. !4 $CT <0. !4 $C?" .2** /4** ,/;;/A!4> A&3 /6!..*1 /4 &--/04. /, .2** !=!; &(3 &41 .2** >&6*3 A*(** 4/. 2*;1 &>&!4 04.!; .2** .!6** /, 0>03.03 !4 $U -, P .A&3 ,/(.2!3 /--&3!/4 .2&. /(&-** A(/.* 2!3 $ "J&- 3 % 2** 1&.** A&3 ,!0*1 <5 &(*(-D/4!4> 1!,,*(*4., (/6 .2&. 2!.2*(./ ,/;;/A*1 <5 .&D!4> $$N 5*&(3 &3 .2** 4/(6&; 3.&41&(1 /, .2** 4 ;&.*(.!6*3 3/6*.!6*3 .2** 4*A (*-D/4!4> A&3 &1/7.*1 3/6*.!6*3 .2** /;1 &3 *&(;5 &3 ;&01!03 A** 2&=** &(*.0(4 ./ .2** /;1 &41 !4 CU .2&. *67*(/(-*;*<(&.*1 A!.2 3*-0;&(>&6*3 .2** RNN.2 5*&(/, /6* !6!;&(;5 .2** 5*&(3 TNN &41 $NNN /, .2** -!.5 A*(** -*;*<(&.*1 2** (!.0&; /(1*(/, .2** >&6*3 A2!-2 0>03.03 /4;5 &;.*(*1 <5 .2** !4.(/10-.!/4 /, 7/;;/ !&4& &41 &./4& &6/4> .2** 1*!.!*3 A/(32!77*1 A&3 &3 ,/;;/A3 .2** <*>!44!4> , .2** 3*&3/4 /, 2&(=*3. 2*(&;13 !4=!.*1 .2** 7*/7;** ./ .2** ,*3.!=&; A2!-2 4/4** 2&1 *=*(3**4 4/(A/0;1 3** &>&!4 &41 .2** -/66!33!/4 /, ,!,.**4 A2!-2 A&3 -2&(>*1 A!.2 .2** 10** -*;*<(&.!/4 /, &;, ,*3.!=&;3 *4K/!4*1 <5 .2** !<5;;!4** </!D3 1!3.(!<0.*1 .2** 6*&43 /, *07!&.!/4 -/43!3.!4> /, ./(-2*3 30;720(&41 7!.-2 ./ &;, (**7*(3/43 /4 .2** &7!./; &41 !4 .2** &;&.!4** .*67;** /, 7/;;/ .2** 3&6** .!6** !4 .2** .*67;** /, .2** &7!./;!4** 07!.*(!4 .2&. /, .2** &;&.!4** 7/;;/ &41 !4 .2&. /, !&4& /4 .2** =*4.!4* A2*&. <&(;*5 &41 <*&43 A*(** 2&41*1 ./ .2** 7*/7;** /,/(&4 /,,*(!4> /, ,!(3.,(0!.3 .2** ,*3.

7(/7*(A2!-2 ;&3.*1 .2(**1&53 &41 .2(**B 4!>2.3 .2** *67*(/(07/4 .2**, !(3. 4!>2. 3&-(!,!-*1 ./ .2** &(-3** .2(** (&63 A2!-2 A*(** -/67;*.*;5 <0(4.07 07/4 .2(**&;.&(3 &. .2** + " 2!3 A&3 &--/67&4!*1 <5 .2** <0(4!4> /, ./(-2*3 &41 .2** -2&4.!4> /, & 2564 .2** 3&6** 7;&-* &41 /4 .2** 3&6** /(.2**, /;;/A!4> 1&5 & <;&-D 2/> &41 & 5/04> 7!> A*(**, /,,*(*1 ./ *;;03 &41 1&(D"-/;/0(*1 =!-.!63./ !3 &41 (/3*(7!4*B 4 .2**, !(3. 1&5 A2!.** d<0;;3 A*(** 3&-(!,!-*1 ./ 07!.*(&41 & A2!.** -/A ./ 04/ /4 .2*B &7!./;&,.*(A2!-2 3-*4!->&6*3 A*(** 2*;1 !4 2/4/0(/, 7/;;/ 4 .2** 3*-/41 1&5" .2** 6&.(/43 7(&5*1 ./ 04/ /4 .2** &7!./;" /4 .2** .2!(1 & 3&-(!,!-** /, A2!.** /0*4 .//D 7;&-** !4 .2** &;&.!4** .*67;** /, 7/;;/ A2!;** .A*4.5"3*=*4 </53 &41 .2** 3&6** 406<*(" /, 63X !8!?43 3&4> .2** "" !4 (**D &41 !4 &.!4 >!..& ((/A # /A39 ;>!..&(;; 2** </A6*4 !4 .2** /6&4 &(6!*3 2*3** A*(** >*4*(&;;5 (&!3*1 <5 ;*=5 /(,..(4!32*1 <5 !** &;;!*3 2** (*F .&4 &;*&(!- &41 3!&.!-< /A6*4 A*(** 37*-!&;;5 -*;*<(&.*1 ,!>06 2** 6!;!.&(5 -;/&D /, .2** /6&4 3/;1!*(3 A2!-2 -/43!3.*1 /, &, /0("-/(4*(*1 7!*-** /, -;/.2 A/(4 /=*(.2** &(6/0(&41 ,&3.*4*1 07/4 .2** 32/0;1*(<5 &-;&37 . A&3 & 356</; /, A&(&3 .2** /1 A&3 .2** 356</; /, 7*&-* ;&-!& /6&4 >/11*33 /, .2** 3&;. A&.*(2** A&3 !1*4.!,!*1 A!.2.2** (**D 672!.(!.** &41 (*>&(1*1 &3 .2** "A!,** /, *7.04* ,!;&(!46 /6&4 .*(6 3!>4!,5!4>! 7(/7*(;5 .2** &;;/A&4-** /, 3&;. A2!-2 .2** >/=*(4/(,0(4!32*1 ,/(.2** 6&>!3.(&.*3 &41 /,,!-*(3 A,!/ ,/(6*1 2!3 (*.!40** .2*4 .2** >(&.!,!-&.!/4 !4 6/4*5 A2!-2 .//D .2** 7;&-** /, .2** 3&;. 41*(.2** 67!(** !. A&3 .2** 7&5 /, .2** !67*(!&; 6&>!3.(&.*3 &3" A*;; &3 /, .2** 7253!-!&43 &41 7(/,*33/(3 !!(.2** 3*("=!-** /, .2** .&.* J f 8H 1&4-*(3 19 4 /;1 .&;!&4 -/;;*>** /, 7(!*3.3 /, &(3" 3&!1 ./ 2&=** <**4 !4.(/F 10-*1 &. /6** <5 !!!4& &41 1/0<;*1 <5 0;;03 /3.!;!03 2** *&(;!*(-/;;*>** A&3" -&;;*1 .2** , " /($ " 2** ,/(6*(1*(!=*1 .2*!(4&6**, (/6 .2*!(/4 .2*B &;&.!4** !;;" .2** ;&..*(, (/6 .2** /;;!4** &.** 4*&(A2!-2 3.//1 .2*!(3&4-.0&(5 /4 .2** S0!(!4&; /.2 -/;;*>*3 -/43!3.*1 /, .A*;=** ;!,*"6*6<*(3 /, 7&.(!-!&4 ,&6!;5 &41 (*-(0!.*1 .2*!(406<*(3 (/6 5/04> 6*4 A2/3** 7&(*4.3 A*(** (*:0!(*1 ./ <** 3.!;; !=!4>" &. .2*!(2*&1 A&3 & 1 &

(044!4> -(/33A!3*< /=*(' .2*< !43.*7 /(' <5' .A/ 3.(&73 ,&3.*4*1 ./ .2*< 3!1*"*1>*3 &41' .!*1 ./>*.2*(' !4 & D4/. /(' <5' & -;&37 /;*3 A*(*< &;3/ A/(4 A2!-2' A*(*< 7(/=!1*1 A!.2 &"-;/3*" ,!..!4> 7!*-*< / ;*&.2*(' &. .2*< 2**; &41' A!.2 & 7!*-*< / ;*&.2*(' 3/6*.!6*3 4&(F (/A 3/6*.!6*3 <(/&1 &. .2*< 3!1*3 2*3*<;&3. A*(*< 3/;&-*1 ./>*.2*(' <5 3.(&73 (/041' .2*< &4D;*3 .2&. .2*< ./*3 &41' .2*<,;&./ /.2*<,//. (*6&!4*1 04-/=*(*1 .D7 $

&772/ 2*<>(*&.*3.7/*.*33/,&4.!:0!.5 </6&. 5.;;*4 /(' (*303!4 *3< 3;!=*1 <*.A**4? N &41 VUN ((<*!4> &5/44>*(' -/4.*67/(&(5/, ;-&*03 83*-0.9 2*<A&3 6&((!*1 ./ & (!-2 6&4/, 41(3 &41 2&1 & 1&0>2.*(' 4&6*1 ;&;3 </0 VT? 32*< A&3 /<;!>*1 ./ ,;**,(/6 *3</3 7(/<&<;5 !4 -/43*:0*4-*< /, 7/;!.!-&; 1!3.0(<&4-*3 &41 ./ (*6&!4 3/6*< .!6*< !4 !-!;5 4

*(' 7/*63 A*(*< 1!=!1*1 <5 .2*< ;*0&4F 1(!4*< 3-2/;&(3 !4./ 4!4*< </D3 &--/(1!4> ./ .2*!(' 6*.(*3 &41 <*3!1*3 .2*< 70(*;5 ;5(!-

8$ < 8V ,G ;*6*4. !=.&5 5!!! != 8 L @(;&QB =' RCR 4/ @$ T

3/4>3 &6/4> A2!-2 .2*< O &? # A A*11!4>";&53 A*(*< 7&(.!-0;&(;5 -*;*<(&.*1 .2*5 !4-;01*1 *;*>!*3 &41 *7!>(&63 A/ /,2*(' /1*3 A!.2 & 406<*(' /, 32/(.,(&>F 6*4.3 &(*< 3.!;;' *0.&4. *(' /1*3 A*(*<,/(' .2*< 6/3.7&(.-/67/3*1 !4.2*< 6*.(*< 4&6*1 &,.*(' 2*(' .2*< ($ (8/7 3.&4Q&9 A2!-2 A&3 3/60-2 03*1 <5 /(&-* 2*5 &(*< &6/4> .2*<.*41*(*3.&41 6/3.-2&(6!4> 7(/10-.!/43!4 .2*< A2/;*< (&4><*< /, *0.&4. (**D ;!.*(&.0(* &41 &,,/(1 3/6*< 7*(-*7F .!/4 /, .2*< 7/!4.3 /, *0-*;;*4-*< &3-(!<*1 ./ &772/<5&4.!:0!.5 3!4-*(!.5&41 1*7.2 /, ,**;!4> 1*;!-&-5 /, (25.26 B61 >(&-*< &41 6*;/1!/034*33 /,;&4>0&>*

B(&7.3 $ A

&(-V72J>43 (/7*(;5 (2 (&D!41 /, 3./4*< 8&;06"3;&.*9 ,/041 4*&(' 33<3 !4 .2*< 1!3.(!-./, (-&3 !4 3!& !4/(' 3/-&;;*1 <*-&03*< !.2 1 2&7*-0;!&(' 7(/7*(.5 .2&. &;; -/(73*3 ;&!1 !4 !. A*(*< -/67;*.*;5 /4306*1 !4 :1&53 A!.2 .2*< *0-*7.!/4 /, .2*< .**. W ;!45 > !! @$$9 30&;;5 -/,,!43 A*(*< /!B5 !4;&!1 A!.2 !. !4 /(1*(' ./ 2&3.*4 1*-/!77/3!.!/4 8 2*4 .2*< 4&6*< !3 >!=*4 >*4*(&;;5 ./ &45 3./4*"-/,,!4 30-2 &3 .2/3*< A2!-2 A*(*< 03./6&(5 &6/4> (**D3 &41 /6&43 &6/4> .2*< ;&..*(' 7&(.!-0;&(;5 &,.*(' .2*< @41 -*4.0(5 # $( ) &41,/(' &

q &41 : "-: (A "'!-/0;1$3/9 ("1 (((7(*=*4.3 FF [.- .(J &>6 /G *(!BD 8 3((& -/..&'(*;!*,,(/6 *;/3 (!.!32 O3*/6 9

2*(' ;&.*(' 5*&(3 32*< A&3 &>&!4 ;!=!4> !4 *3</3 !4 .2*< 3/-!*.5 /, 5/04> >!(;3 A!.2 &4 !437!(&./!4 ,/(' 7/*.(5 9 ;.2/0>2 &--/(1!4> ./ .2*< 7(!4-!7;*3 *07(*33*1 !4 2*(' /A4 7/*63 &41 &--/(1!4> ./ .(03.A/(.25 .*3.!6/4!*3 /, &4.!:0!.5 32*< A&3 & A/6&4 /, 70(*< &41 3.(!-. ;!,* 5*. ;&.*(' 3-&41&; 04A&((&4.&<;5 70. &4 !6 6/(&; !4.*(7(*.&./4 /4 .2!3 3/-!*.5 :0&;;5 04,/041*1 !3 .2*< ;*>*41 *6&4&.!4> ,/6 .2*< ..!- -/6*1!&43 .2&. 32*< .2(*A 2*(3*;, (/6 .2*< *0-&1!&4 (/-D !4./ .2*< 3*& /0. /, 1*37&!(' &. .2*< (*(*-./4 /, 2*(' ;/=*< 5 & 2&413/6* 3*&6&4 4&6*1 2&/4 f,(&>6 /, *4&41*(3 " Q

4 8 /(4* & -&4 O**06 9

37*-!6*4 0 2*< -0. (*7(*3*4.3 .2*< 3&(-/72&>03 /, /(4*;!&3 -!7!/ &(<&.03 -/430;' @TR - >(*&.">(&41,&.2*(

/ ,' .2*' *;1*(' -!7!/'% ,(!-&403' /,' .2*' (1' G-*4.0(5' (' .' !3' 6&1*' /,' -/ 6 6 /4' 3./4*' &41' !3' .2*' /4;5' *0& 6 7;*' (* 6 &!4!4>' ,(/ 6 ' .2*' /;1' / 6 &4' .! 6 *

J(!33&' 2*' .2(03.!4>";&4-*' /,' .2*' &-*1/4!&4' 2/7;!.*3' # ' # ' &41' ;!>2.' -&=&;(5' A2!-2' !4' .2*' .! 6 *' /,' 2!;!7' &41' ;*0&41*(' A&3' $R' ,**.' ;/4>' &,.*(A&(13' $C' ' ,(/ 6' .2!3' ;&4-*' .2*' ;!>2.' -&=&;(5' *(*' G-&;;*1' (' 83&(!33&"<*&(*(39

&(7*1/4' --/(1!4>' ./' / 6 *(' 3/4' /,' L*03' &41' &31& 6 !&' &41' >(&413/4' /,' *;'" ;*(72/4' ' ;!D*' 2!3' -/03!4' ;&0-03' 8 ' C9' %& 7(!4-*' /,' .2*' 5-!&43' &41' &;;5' /,' (!& 6 ' .2*' 3./(6!4>' /,' .2*' (**D' -& 6 7' 2*' !4' "-/ 6 7&45' A!.2' ;&0-03' A&3'.2*',!(3.'07/4'.2*' %*4*65 3' A&;;' /4' 2!3' ,&;;!4>' <5' .2*' 2&41' "/,' &.(/-;03' &' ,*&(,0;'<&..;*' &(/3*' /=*(' 2!3' ,,K/15'04.!;' 7/;;/' <5' .2*'-/ 6 6&41' /,' L*03' (*3-0*1' .2*' 1!3,!>0(*1' -/(73*' ,(/ 6' .2*' (**D3' &41' &,.*(' A&32!4>' !.' &41' &4/!4.F !4>' !.' A!.2' & 6<(/3!&' 2&1' !.'-&((!*1' .2(/0>2' d.2*' &!(' ./' 5-!&' <5' .2*' .A!4' <(/.2*(3' ;**7' &41' *&.2' f /6*(' O=!' C$T"?R g' &.*(' A(!.*(3' 1*3-(!<*' 2!6' &3' &' 3/4' /,' L*03' &41' 0(/7&' &41' <(/.2*(' /,' !4/3' G1(!=*4' /0.' <5' .2*' ;&..*(' 2*' A/4' ,/(' 2!6' K3*;,' &' ;/(132!7' !4' 5-!&' &41' ;!=*1' .2*(*' <5' %.2*' ,&=/0(' /,' L*03' ,/(' .2(**' >*4*(&.!/43 &.!(*' 8 &.' ' /;1*(' ,/(6' ' 2*' A/(1' 7(/7*(;5' 1*4/.*3' &' 6*1;*5' /,' 2*.*(/>*4*/03' .2!4>3' &41' !4' 7&(.!-0;&(' & D!41' /,' 1(& 6 &.!-&;' ,&(-*' A2!-2' -/43!3.*1' G/,' &' 6!0.0(*' /,' 37**-2' 3/4>' 603!-' &41' 1&4-!4>' # ' > (' *,/(*' .2*' (!3*' /,' &4' &(.!3.!-' .57*' /,' / 6 &4' 1(& 6 &' .2*3*',&(-*3' A*(*' 7*(,/(6*1' %/4,*3.!=*' /--&3!/43' <5' !.!4*(&4.' 6!43.(*;3' .2*' (*7(*3*4.&.!/4' .&D!4>' 7;&-*' 07/4' .2*' 70<;!-' 3.&>*' *(*-.*1' &.' / 6 *' !4' TN' (,.*(' .2*' !4.(/10-.!/4' /,' .2*' (**D' 1(& 6 &' <5' !=;03' 41(4;-03' @CN' - ' .2*' ' 3&4D' ./' .2*' 7/3!.!/4' /,' &,.*("7!*-*3' B# - ' A2!-2' A*(*' !6 7(/=!3*1' <5' 6 &3D*1' / 6 &4' 5/0.23' &,.*(' .2*' -/4-;03!/4' /,' .2*' 7*(,/(6 &4-*' 7(/7*(" !4' .2!3' 32&7*' .2*5' ;&3.*1' 4.!;.2*5' A*(*' *4.!(*;5' 3077;&4.*1' <5' .2*' " ' 3' &4' &(.!3.!-' -/ 6 7/3!F .!/4' .2*' ' !3' A2/;;5' 041(& 6 &.!-&;' &41' 1*3!>4&.*3' !4' .2*' ,!(3.' !43.&4-*' &' -/;F ;*-.!/4' /,' 6 !3-*;;&4*/03' 7!*-*3' /,' 7/*.(5' /,' 2*.*(/>*4*/03' -/4.*4.3' &41' 6*.(*3" !4' .2!3' ,/(6' !.' 3**63' ./' 2&=*' <**4' ,!(3.' !4.(/10-*1' !4./' ;!.*(&.0(*' <5') ' ' 1*,!4!.*' !6 7(*33' ,!0!4>' !.3' -2&(&-.*(' ,/(' &;;' ,0.0(*' .!6*' A&3' >!=*4' ./' .2*' ' !4' .2*' @41' -*4.0(5' (' <5' " (A A) ' A2/' 6&1*' !.' *33*4.!&;;5' A2&.' A*' 4/A' 041*(F 3.&41' <5' 3&.!(*' &41' !3' .2*(*,/(*' 1*3!>4&.*1 <5' /(&-*' W ' !!' $' ?@g' &3' .2*' !4=*4./(' /,' .2!3' <(&4-2' /,';!.*(&.0(*' =*4' 2!3' 3&.!(*3' &3' 6 &5' <*' >&.2*(*1',/(6' .2*' ,(&>6*4.3.2&.' 30(=!=*' A*(*' /,' &' =*(5' 6!3-*;;&4*/03'-2&(F &-.*(' &3' (*>&(13' 6 &..*(' &41' &3' (*>&(13' ,/(6' ;;' 7/33!<;*' &37*-.3' /,' .2*' /<K*-.3' /,' &' 1!3-03F 3!/4' A2!-2' 6!>2.' <*' 3*(!/03' K/-0;&(' /(' -*43/(!/03' &3' /--&3!/4' (*8O!(*1' .' A&3' -/ 6 7/3*1'!4'.2*',/(6'3/6*.!6*3',' &4' *33&5' 3/6*.!6*3' /,' &' ;*..*(' 3/6*.!6*3' /,' &' 1!&F ;/>0*' &41' !4' .2*' -/4=*(3&.!/4&;' 3.5;*' !4' =/>0*' &.' .2*' .!6*' 4' 2!3' *&(;!*(' 7/*63' 2*' 6&1*' 03*' /,' =&(!/03' 6*.(*3' &,.*(A&(13' &;6/3.' *0-;03!=*;5' /,' .2*' 2*0& 6*.*(' 2*' 3!>4!,!-&4.' *0& 6 7;*' /,' 0-!;!03' !4=!.*1' *1' *6 0F ;&.!/4' &;;' .2*' 6/(*' <*-&03*' .2*' 7(/3&!-' &+1' %1!1&-.!-' *;* 6 *4.' !4' 3&.!(*' A&3' !4' .2*' 6/3.' .2/(/0>2' &--/(1&4-*' A!.2' .2*' /6&4' -2&(F &-.*(' &41' 7/*.!-&;'-&7&-!.!*3' --/(1!4>;5' &' 406<*(' /,' !6!.&./(3' &(*' 6*4.!/4*1' (*&-2!4>' 1/A4' ./' .2*' *41' /,' .2*' *70<;!-' .2/0>2' !4' .2*' K01>6*4.' /,' /(&-*' .2*!(' *41*&=/0(' ./' &..&!4' .2*' ;*=*;' /,' .2*!(' C$T"?R g' &3' &=&!4' /4*' W ' !' $N' CUg' ' (*=!=&;' &41' 1*=*;/7F 6*4.' &43A*(!4>'./' .2*' 6/(*(*,!4*1' .&3.*' /,' .2*' .!6*' A&3' >!=*4' ./' .2*' 0-!;!&4' ' <5' /(&-*' A2/' 2/A*=*(' -/4,!4*1' 2!63*;,' ./' 3/-!&;' &41' ;!.*(&-5' ;!,*' &41' 03*1' .2*' 2*0& 6*.*(' &;/4*' 4' .2*' ;&..*(' (*37*-.' 2!3' *0& 6 7;*' A&3' ,/;;/A*1' <5') ' &41' 3) + ! <0.' .2*3*' .(*&.*1' .2*' -/4.(&3.' <*.A**4' .2*' !1*&;' &41' .2*' &-.0&;' A2!-2' 7(/=/D*3' .2*' 3&.!(*' 4/.' A!.2' .2*' 206/0(' /,' /(&-*' <0.' GA!.2' <!..*(4*33' &41' 3*=*(!.5 4' &4-!*4.' 8/(' 7(*" 0-!;!&49' 3.5;*' /,' ' &3' (*=!=*1' ./A&(13' .2*' *41' /,' .2*' *70<;!-' <5' .2*' H' 6/3.' ;*&(4*1' /,' .2*' /6&43 I' *(*4.!03' 1 ' A!.2' 2!3' " "' ' !4' A2!-2' ,/;;/A!4>' .2*' *0& 6 7;*' /,' .2*' 54!-' 4!7703' /,' &1J(&' 2*' .(*&.*1' 3*(!/03' 30<K*-.3' !4' 206/(/03' ,&32!/4' &41' !4' & 6!0*1' ,/(6' /,' 7(/3*' &41' 7/*.!5' 2!3' 6!0*1' ,/(6' A&3' &;3/' &1/7.*1'!4'.2*' .!6*' /,' *(/' <5' $ % ' !4' 2!3' 3&.!(!-&;' (/6&4-*' /,' 6&44*(3' &41' <5' + ;' !4' 2!3' 3&.!(*' /4' ;&01!03' &3' A*;;' &3' !4' ;&.*(' .!6*3' <5' .2*' *67*(/(' 3) ' !4' 2!3' $ ' A(!..*4' !4' (**D 2*' 3&.!(*' !3' &' .2/(/0>2;5' /6&4' 37*-!*3' /,' 7/*.(5' fS0!4.!;!&4' O' ' T ' ' ' " ' g' ,/(' .2/0>2' .2*(*' !3' 60-2' !4' .2*' 7/*.(5' /,' .2*' (**D3' A2!-2' !4' (*>&(1' ./' 30<K*-."6&..*(' -/((*37/413' !4' 3/6*' 1*>(**' ./' .2*' 3&.!(K3.!;;' .2*5' A*(*' 4*=*(' &<;*' ./' 7(/10-*' &' ;!.*(&.0(*' /,' .2!3' D!41' 3.&67*1' A!.2' &1*,!4!.*'-2&(&-.*(' /,' !.3' /A4' &41' 1*3-(!<*1' <5' &' 1!3.!4-.!=*' 4&6* &..!(&' ' $

&.0(4&;!& ' / 6 &4' ,*3.!=&;' !4' 2/4/0(&.0(403' #

&./ 6 ..3' 8H .2*' 3/A*(I9" 4' &4-!*4.' .&;!&4' >/1' /,' 3**1.!6*' &41' 2&(=*3.' A!.2' &' 3!-D;*' &3' B 6 < / ;'" 203<&41' /,' W&8',&.2*(' / ,' !-03' 4' ;&.*(' .!6*3' 2*' A&3' !1*4.!,!*1' A!.2' .2*' (**D' ^(,!4/3' A2/' .2(03.' /0.' <5' L*03' -&4B*' &-(/33' .2*' 3*&' ./' &.!06' A&3' (*-*!=*1' <5' &403' 3*..;*1' &3' D!4>' /4' .2*' &7!./;!4*' !;;'8&3'!.' A&3' -&;;*1'!4' &,.*(' .!6*39' <(/0>2.'&>(!-0;.0(*' &41' !.3';<;*33!4>3' ./' .2*' 7*/7;*' &41'30<3*:0*4.;5'1!3&77*&(*1' !3' (*!>4' A&3' (*>&(1*1' &3' .2*' >/;1*4' &>*' /,' .&;5' .' .2*' .//.' /,' .2*' &7!./;!4*' !;;' &' .*67;*' <0!;.' <5' .2*' ;&3.' &(:0!4' /4' .2*' 3!.*' /,' &' =*(5' &4-!*4.' &;.&(' A&3' 1*1!-&.*1' ./' 2!6' &41' ./' 2!3' A!,*' 73' 41*(' .2!3' .*67;*' A&3' .2*' /6&4' .(*&30(5' # ' *' /' C' !4' 7;&4' ' ') : ' #É -*7.' 10(!4>' 2!3' ,*3.!=&;' 2!3' 3.&.0*' A&3' .2(/0>2/0.' .2*' 5*&(' A/041' (/041' .2*' ,**.' A!.2' A//;:*4' ,!;;*.3' */7;*' /,,*(*1' 3&-(!F ,!-*3' ./' 2!6'A!.2'04-/=*(*1' 2*&1'&--/(1!4>' ./' .2*' (**D' (!.*3' !3' /A4' ,*3.!=&;' .2*' " ' .//D' 7;&-*"/4' *-*6<*(' $U' &41' -/43!3.*1' /,' "3&-(!,!-*3' !4' .2*' /7*4' &!(' !4' ,(/4./,' . *' .*67;*' &41' &;3/' /,' &4' /0.1//(' <&4:0*.' &.' A2!-2' .2*' 3*4&./(3' &41' D4!>2.3' &77*&(*1' &,.*(' ;&5!4>' &3!1*' .2*' 1 ',/(' &;//3*;5',!..!4>'>/A4'-&;;*1' :" (' ,.*(' .2*' ,*&3.!4>' .2*5' 3*7&(&.*1' A!.2' .2*' -(5' /' " ' ì' 2*' ,*3.!=&;' A&3' &;3/' -*;*<(&.*1' !4' 7(!=&.*' 3/-!*.5" 3-2//;3' 2&1' D/;!1&53' ;&A"-/0(.3' A*(*' d-;/3*1' &;;' A/(D' A&3' 3./77*1' A&(' A&3' 1*,*((*1' &41' 4/' 704!32 6*4.' /,' -(!6!4&;3' .//D' 7;&-*' ,/('3*=*4' 1&53' ,(/6' *-*6<*(' $U' ./' @ ' 0(!4>'.2&.' .!6*' .2*(*' A*(*' &;' D!413' /,' ,&4.&3.!-' &603*F 6*4.3' 2*' ,*3.!=&;' A&3' (6</;!-&;' /,' &(*.0(4' ./' .2*' >/;1*4' &>*' */7;*' >&=*' 7(*3*4.3' ./' /4*' &4/.2*(' !4' 7&(.!-0;&(' A&0' .&7*(3' # ' &41' 1/;;3' # 1 ' 2*5' &;3/' *4.*(.&!4*1' /4*' &4/.2*(' &41' &603*1' .2*63*;=*3' A!.2' 3/-!&;' >&6*3' !4' 7&(.!-0;&(' .2*5' >&6<;*1',/(' 40.3 [.2*' 356</;',' ,(0!.F ,0;4*33' =*(5',(**1/6'A&3'>!=*4'./'3;&=*3' &41' .2*5' A*(*' ,!(3.' *4.*(.&!4*1' &.' .2*' <&4:0*.' &41' 3*(=*1' <5' .2*!(' 6&3.*(3' !4' (*" 6*6<.&4-*' .2&.' 041*(' .2*' (0;*' /,' &. 603' .2*(*' 2&1' <**4' 4/' 1!,,*(*4-*3' !4' 3/-!&;' (&4D 1*3'#0' '191' 4*' /,' .2*' .2(**=&(!*.!*3' /,' .2*' ..!-' 1(*6&' .3' /(!>!4' 6&5' <*' .(&-*1' <&-D' ./' (&.! &3' /,' ,!;;03' 8&<!0.' V8]9' 9 ' .' !3' 7(/<&<;*' .2&.'&,.*(' 3*..;!4>' !4' .2*43' 2*' &1&7.*1' .2*' /;1' 1!.25(&6<' A!.2' !.3' -2/(03' /,' &.5(3' A2!-2' A&3' -03F ./6&(5' !4' 2!3' 4&.!=*' 7;&-*' ./' .2*' ,/(6' /,' .(&>*15' A2!-2' 2&1' <**4' (*-*4.;5' !4=*4.*1 !4' .2*43' 2!3' 4*A' D!41' /,' 1(&6&' 6*.' A!.2' 3/' 60-2' &77(/=&;' &41' A&3' 3/' 60-2' 1*=*;/7*1' <5' (&.!4&3' 2!63*;,' &3' A*;;' &3' <5' 2!3' 3/4' (!3. &3' <5' 2/*(;;03' <5' ! 3-45;03' &41' .2*' 1(&6&.!3.3' A2/' 30-F -**1*1' 2!6' .2&.' !.' <*-&6*' .2*' -03./6' ./' &-.' &' 3&.5(!-' 1(&6&' &,.*.' &' 3*.' /,' .2(**' .(&>*1!*3' 2*' 3*(!/034*33' /,' .2*' 7(*-*1!4>' 7;&53' A&3' .203' (*;!*=*1' A2!;*' .2*' -2/(03' /,' &.5(3' &41' 0;*4!' .2*' -/67&4!/43' /,' ;/4'B303' 3*(=*1' ./' !41!-&.*' .2*' /(!>!4&;' -/44*0!/4' <*.A**4' .2&.' 1 6 4!.5' &41' .2*' 1(&6&' 2*' 6&.*(!&;' ,/(' &' 3&.5(!-' 1(&6&' ;!D*' .2&.' ,/(' &' .(&>*15' A&3' .&D*4' ,(/6' &4' *7!-' /(' ;*>*41&(5' 3./(5' &41' .2*' &-.!/4' %.(2!-2 .//D' 7;&-*' 041*(' &4' /7*4' 3D5' !4' &;/4*;5' A//1' .2*' 2&04./,' .2*' &.5(3' 2&1' >*4*(&;;5' &4' *;*6*4.' /,' .(&>*15" <0.' .2*' -2&(&-.*(!3.!-' 3/;*64!.5' &41' 3.&.*;!4*33' /,' .(&>*15' A&3' 3/6*A2&.' 1!6!4!32*1' A!.2./4.' !4' &45' A&5' !67&!(!4>' .2*' 37;*41/0(' /,' .2*' .(&>!-'-/3.06*' &41' .2*' 1!>4!.5' /,' .2*' 2*(/*3' !4.(/10-*1' 2*' &603!4>'*,,*-.' /,' .2*' 7;&5' 1!1' 4/.' 1*7*41' 3/' 60-2' /4' .2*' &-.!/4' !.3*;,' &3' A&3' .2*' -&3*' !4' -/6*15' <0.' (&.2*(' /4' .2*' (*;&.!/4' /,' .2*' -2/(03' ./' .2&.' &-.!/4' 2&,' (*;&.!/4' A&3' !4' D**7!4>' A!.2' .2*' A&4./4' 3&0-5' &41' !43/;*4.' &41' &.' .2*' 3&6*' .!6*' -/A&!A5' 4&.0(*' /,' .2*' &.5(3' 2*' 406<*(' /,' 7*(3/43' !4' .2*' -2/(03' !3' 4/.' D4/A4' 7(/<&<;5' .2*(*' A*(*' *!.2*(' .A*;=*' /(',!,.**4' &3' !4' .(&>*15' 4' &--/(1&4-*' A!.2' .2*' 7/70;&(' 4/.!/43' &</0.' .2*' &.5(3' .2*!(' -/3.06*' -/43!3.*1' /,' .2*' 3D!4' /,' &' >/&.' 1**(' /(' 7&4.2*(' .2(/A4' /=*(' .2*' 4&D*1' </15B' &41' <*3!1*3' .2!3' &' 2!1*/03' 6&3D' &41' <(!3F .;!4>' 2&!(' ' 2*' 1&4-*' /,' .2*' -2/(03' !4' .2*' 3&.5(!-' 1(&6&' A&3' -&;;*1' " " ' &41' -/4F 3!3.*1' /,' &' ,&4.&3.!-' D!41' /,' 3D!77!4>' &41' K067!4>' 2*' /4;5' 3&.5(!-' 7;&5' 4/A' *OF .&4.' !3' .2*' $: ' /,' 0(!7!1*3' 2*' /6&43' 1!1' 4/.' !6!.&.*' .2!3' D!41' /,' 1(&6&' !4' .2*!(';!.*(&.0(*';.2/0>2';!D*' .2*' (**D3' .2*5' 03*1' ./' 2&=*' 6*!(5'&,.*("7!*-*3',/;;/AF !4>' .2*!(' 3*(!/03' 7;&53' # ' # & &.5(3' 4' (**D' 65.2/;/>5' 37!(!.3' /,' .2*' A//1;&41' !4' .2*' .(&!4'/,' !/45303' A!.2' 70-D' 4/3*3' <(!3.;!4>' 2&!(' > &.";!D*' *&(3' &41' 32/(.' .&!;3' 2*5' &(*' 1*7!-.*1' &3' A&4./4' -044!4>' &41' -/A&(1;5' -(*&.0(*3' &41' &;A&53',/41'/,' A!4*' &41' A/6*4' 2*5' 1A*;;' !4' A//13' &41' /4' 6/04.&!43' A2*(*' .2*5' 204.' &41' .*41' -&..;*' 1&4-*' &41',(/;!-' A!.2' .2*' 56723' 8,/(' A2/6' .2*5' ;!*' !4' &6<0329' 6&D*' 603!-' A!.2' 7!7*' &41',;0.*' &41' (*=*;' A!.2' !/45303' 2*!(' /A4' 37*-!&;' 1&4-*' !3'-&;;*1' " " ' 2*5' A*(*' -/43!1*(*1' &3',/*3' ./' 6&4D!41' <*-&03*' .2*5' 7;&5*1' 7*/7;*' &;;' D!413' /,' (/>0!32' 7(&4D3

&41' ,(!>2.*4*1' .2* 6' 25' !6 7!32' .(!-D3' 2*'
2&(*' &3' & A&4./4' -/A&(1;5' &41' &6/(/03

4' &(.' 241' 7/*.(5' .2*5' >&!4*1' &' 2!>2*('
3!>4!,!-&4-*' /A!4>' . ' .2*' ,*3.!=&;3' /,'
!/45303' # ' &'1 ' 4'*&(;5'
&(.' .2*5'&(*'(*7(*3*4.*1' ,/(' .2*' 6/3.' 7&(.' &3'
<*&(1*1' &41' /;1' &41' /,.*4' =*(5' !41*-/(/03'
3' .!6*' A*4.' /4' .2*5' A*(*' (*7(*3*4.*1' &3'
=(' 5/04>*(' &41' 6/(*' >(&-*,0;' &41' A!.2'
&4' *07(*33!/4' /,' &6!&<;*' (/>0!324*33' # '
-0.39' f 2*' &(.!3.' A2/';*1' .2*' A&5' !4' .2!3'
.(&43,/(6&.!/4' A&3' (&0!.*;*3' 2*' 3.&.0*'
/,' .2*' &.5(' A2!-2' &03&4!&3' 8!' @N' `' $9'
3&A'&.' .2*43' !4' .2*' .(**.' /,' (!7/13' !3'
>*4*(&;;5' 3077/3*1' ./' <*' .2*' /(!>!4&;' ,(/6'
A2!-2' .2*' 3.&.0*' !4' .2*' &7!./;!4*' 03*06'
&41' 6&45' /.2*(3' /,' .2*' 3&6*' .57*' &(*' 1*F
(!=*1' H' 4' .2*'
:' ' , - R
' &;;' .2&.' !3'
-/&(3*' &41' 0>;5'
!4' ,/(6' &;;' .2&.'
!3' 6*&4' /(' (*=/;.F
!4>' !4' *07(*33!/4'
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<5' .2*' ,!(*' /,'
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.*(4&;' 6&(D3' /,'
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A2!-2' !3' &' (*6!F
4!3-*4-*' /,' .2*'
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.2*'>/&.!'8 *((53' 8 9' .' ' '
6 ' " ' 7 R ' ' '
"' ' , /2+!(6!+0
7' C U9' # ' ,!>
$9' 2*' &.5(' (*7(*3*4.*1' !4' ,!>' @' A&3'
(*>&(1*1' <5' !4-D*;6&44' &3' !4' 7/!4.' /,'
0-0.!/4' /4*' /,' .2*' 6/3.' <*&0.!,0;' /(D3'
/,' &4-!*4.' &(.9' #$ ' $
& (/-. 413' 8H';!Q&(1'3;&5*('!9' '37*-!&;'
4&6*' /,' 7/;;/'#
-*4*' 8 &.' " ' 2*' 3.&>*' # '

-*7.!-!36' ' 72!;/3/72!-&;' 3-2//;'
,/041*1' <5' 5((2/' /,' ;!3'8&</0.' ' (' ?V'"
@UV9' A2!-2' (*,03*1' ./' &-D4/A;*1>*' .2&.'
.(0.2' A&3' /<.&!4&<;*' <5' .2*!' 7*(-*7.!/4' /,'
.2*' 3*43*3' &41' .2*' -/>4!3&4-*' /,' .2*' 6!41
4' ;!.*(&.0(*' !.' !3' -2!*,;5' (*7(*3*4.*1' <5'
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$
-2 (&' 2*' 65.2!-&;' !3;&41' /,' .2*'
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.2*' 2!3./(!-' /(8B(&
-2//;3' ' (&

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8@9'
'-/ &6//-2!&' 04!-2' ;57./.2*D' /'TT9

-(*&.0(*' /,' .2*' A//1;&41' A&3' .2*!(' &77(/F
7(!&.*' 356</;

-!(;.3* * </15* /,* ;!>2.* !4,&4.(5* !4* .4** 7&(.&4* &(65* -/43!3.!4>* /,* .2** * # * /,* .2** 1!3.(!-.* -!(!.!3 -!(/4* * (/<<*(* A2/* ;!=*1* /4* .2** </041&(5* <*.A**4* *> (* &41* ..!-&* &41* -/67*;;*1* .2** .(&=*;;*(3* A2/3** >//13* 2** 2&1* 3*!Q*1* ./* A&32* 2!3*,**.* /4;5* !4* /(1*(* ./* D!-D* .2*6* !4./* .2**3*&* A2*(** &4* !66*43** ./(./!3** 1*=/0(*1* .2*!(* 1*&1* </1!*3* /* A&3*3;&!4* <5* .2** 5/0.2,0;* 2*3*03*& -!(1721(!,.* 4* .2*4!&7*,*3.!=&;* -*;*F <(&.*1* /4* .2** @.2* /,* .2** 6/4.2* (2 "" 8 04*" 0;59* -&;;*1* &,.*(* !.* .* A&3* !4* 2/4/0(* /,* .2*4** A2/* A&3* A/(32!77*1* 041*(* .2** 4&6** /,* - (3* 4*&(* -;(<4* &* 37/.* /4* .2** H2/;5* A&5!* ;*&1!4>* ,(/6* .2*43* ./* ;*03!3* .* 2&1* !.3* 4&6** ,(/6* .2** ;&(>** A2!.** 30432&1** 83-#(149* <*4*&.2* A2!-2* .2** 7(!*3.*33* /,* .2*4** 8.2** 7&.(/4* >/11*33* /,* .2** -!.59* .2** 7(!*3.* /,* (*-2"* .2*03B* &41* .2** 7(!*3.* /,* *;;<3* A*4.* ./* -!(/4* ./* 3&-(!,!-** 2** 30432&1** A&3* &* 356</;* /,* 2*&=*4;5* 7(/.*-.!/4* &>&!43.* .2** (&53* /,* .2** 304* A2!-2* <*>&4* ./* <0 6* 6/(** !4.*43*;5* 10(!4>* .2** 6/4.2* /,* .2** ,*3.!=&;* 2!3* 7(/.*-.!/4* A&3* !4=/D*1* A!.2* 37*-!&;* (*&3/4*,/(* .2** 1(5*;!6*3./4**(/-D* A&3* .!14;5* -/=*(*1* <5* &* 6*&>(** 30(,&-** /,* 3/!;* !4* .2** 4*!>2</0(2//1* /,* .2*43* &41* 7&(.!-0;&(;5* 4*&(* -!(/4* !.3*;,* 4* .2!3* &3* !4* /.2*(* ,*3.!=&;3* /,* !4=/-&.!/4* .2**,** *(** &;3/* *07!&./(5* /,,*(!4>3** &41* 2*4-** .2*5* -&((!*1* !4* .2** 7(/-*33!/4* .2** 2!1** /,* & (&6* .2&.* 2&1* <**4* 3&-(!,!-*1* ./* L*03* &3* .2** 6!;1* &41* >(&-!/03* 1*!.5* & ! (? I -?$$J* 2/(.*;5(!-&;* 7/*63* 030&;;5* -/4F 3!3.!4>* /,* & 3!4>;** * A2!-2* A*(** !4F .*41*1* ./* <** 304>* &,.*(* 1!44*(* /=*(* .2** A!4** 2**&4-!*4.3* &3-(!<*1* .2*!(* !4=*4.!/4* ./* *(7&41*(* &41* .2*5* (*-*!=*1* .2*!(* ,!(3.* 1*=*;/76*4.* &6/4>* .2** *3<!&43* &41* A*(** A(!..*4* <5* 30-2* 6&3.*(3* /,* 3/4>* &3* ;-&*03* &772/* (&0!;;&* !6 -(*/4* !6/4!1*3* &41* !41&(* 2** ;&3.* 6*4.!/4*1* 2/A*=*(* >&=** .2*6* & 6/(** &(.!3.!-* ,/(6* A!.2* 3*=*(&;* 3.(/72*3* !4* &--/(1&4-** A!.2* .2** (0;*3* /,* /(!&4* ;5(!-*=*(3** 2!3* -;&33* /,* 7/*.(5* ,/041* & -/4>*4!&;* 2/6** !4* .2** <(!;;!&4.* &41* ;!=*;5* -!.5* /,* .2*43* A2*(** ./* .2** =*(5* *41* /,* .2** *;/7/44*3!&4* &(!.* A&3* .2** (*>0;&(* -03./6* &.* <&4:0*.3* &,.*(* &;* 2&1* K/!4*1* !4* .2** " * ./* 7&33(/041* & ;5(** A!.2* & .A!>* /,* 65(.;** &41* ./*(*:0*3.* &;* >0*3.3* A2/* 2&1* .2** (*:0!3!.** 3D!;* ./* 3!4>* 30-2* &3/4>* /4* .2** 370(* /,* .2** 6/6*4.* /* K01>** ,(/6* .2** 37*-!6*43* .2&.* 2&=** <**4* 7(*3*(=*1* .2*!(* -/4.*4.3* A*(** *OF .(*6*;5* =&(!*1* !4=/-&.!/43* /,* .2** >/13* >4/6!-* 3&5!4>3* ,(*:0*4.;5* A!.2* &;;03!/43 * * ./* -/66/4* 7(/=*(<3* &41* ,&<;*3* &41* .2** 7(&!3*3* /,* .2** <;*33!4>3* &41* 7;*&30(*3* /,* ;!,** 2** 6/3.* ,&6/03* "* A&3* .2&.* /,* &* -*(.&!4* &;;!3.(J.03/4* &(6 1;.,3* &41* (!3. >!./4* A2/* 2&1* D!;;*1* .2** .5(&.* !77&(-203*3/4*/,* !3!3.(&.03* .* -/43!3.3* /,* ,/0(*3.(/72*3*<0.* .2** ;&3.* .2(** &(** /4;5* =&(!&.!/43* /,* .2**,!(3. -"7&3*8/,* J("39* 4** /,* .2** 6/3.* -*;*F <(&.*1* (**D* 3-0;7./(3* !.2* (&0!.*;*3* 2** 3./!1* &.* .2** 2*&1* /,* .2** ;&.*(* ..!-* 3-2//;* !4* .2** ,!(3.* 2&;,* &41* ./A&(13* .2** 6!11;** /,* .2** C.2* -*4.0(5* ** A&3* &;3/* &4* &(-2!.*-.* &41* !4* 213* 5/04>*(* 1&53* 307*(F !4.*41*1* .2** (*-/43.(0-.!/4* /,* .2** .*67;** /,* .2*4** &.* *>*&* A2!-2* 2&1* <**4* <0(4.* 1/A4* !4* TC* (* 2** >(/073* !4* .2** .A/* 7*1!6*4.3* (*7(*3*4.!4>* .2** -2&3** /,* .2** &;51/4!&4* </&(* &41* .2** -/6<&.* /,* -2!;;*3* &41* *;*7203* A*(** *0*-0.*1* <5* 213* 2&41* /(* &.* &45* (&.** 041*(* 213* 1!(*-.!/4* f &4"* 3&4!&3* =!!!* CV ``* C"U* 2** *0&-.* 3!.** /,* .2!3* .*67;** A&3* &3-*(.&!4*1* !4* $RUT* &41* ,(&>6*4.3/,* .2**3-0;7.0(*3* !4* .2** 7*1!6*4.3* A*(** 1!3-/=*(*1* 10(!4>* .2** *0-&=&.!/!;3* 2*5* !4-;01** .2** 2*&13* /,* .A/* 5/0.2,0;* 2*(/*3* &41* .2** 60.!;&.*1* 2*&1* /,* .2** &;5"* 1/4!&4* </&(g* 4* -/4K04-.!/4* A!.2* /.2*(* &(.!3.3* 2** *0*-0.*1* !4* VN* .2** 1*3!>43* /4* .2** 3*70;-2(** /,* &03<;03* & * o * !3* 6/3.!67/(.&.* A/(D* &* >(/07* A!.2*406*(/03*,!>0(*3*(*7(*3*4.!4>* -2!;;*3* <*!4>* -/410-.*1* ./* .2** !3;&41* /,* *0-"* &41* !4-;01!4>* <3*!1/4* 2 .;3* -2!;;*3* &41* (!./43* &41* *(*!13* (!1!4>* /4* 3*&* 6/43.*(3* &,.*(A&(13* /(4&6*4.*1* .2** .*67;** /,* *7F .04** 4*&(* .2** !(-03* ;&6;4!43* !4* /6* f ;!45* > * * OOO=!* @?g* 4* ;!45 3* .!6* fOOO=!* @Rg* .2*(** A&3* 1/0<.* &3* ./* A2*.2*(* .2** >(/07* /,* !/<!13* & * * !4* .2** /6&4* .*67;** /,* 7/;,/* 3!&403* A&3* .2** A/(D* /,* -/7&3* /(* /,* (&0!.*;*3* 2** 406*<*(* /,* 3!4>;** 3.&.0*3* *37*-!&;;5* /,*>/13* &41* 1*6!>/13* <5* 213* 2&41* A2!-2* A*(** D4/A4* ./* .2** &4-!*4.3* A&3* =*(5* >(*&.* 6/4>* .2*3** A&3* .2** 7/;,/* 7;&-B* <5* 0>03.03* !4* .2** .*67;** /4* .2** &;&.!4** -;/.2*1* !4* &;/4>*(/<* A!.2* &* -(/A4* /,*<&5"* ;*&=*3* /4* 2!3* 2*&1* 3A**7!4>* .2** -2/(13* /,* 2!3* ;5(* f ;!45* OOO=!* @V"* (/7*(.!03* !!* $* $$* "* $?g"* .2** -/;/33&;* 3*&.*1* ,!>0(** /,* (*3* !4* .2** .*67;** <0!,.* <5* (0.03* &;;&*03* 4*&(* .2** !(-03* ;&6!4!03* f ;!45* ** @?g"* .2** 401** 3.&.0** /,* 72(<1!.** !4* .2** 3&6** .*67;** f,2 g" &41* .2** ,(*4Q!*1* &*4&1* W " (1 * 6 * !* UC UV" !!!* VU g* 2** !4,;0*4-** /,* 3/6** /,* .2*3** A/(D3* 2&3* <**4* .(&-*1* !4* -/7!*3* &41* !6!.&.!/43* .2&.* &(** 3.!;* *0.&4.* f 203* .2** " * !3* 3077/3*1* ./* 2&=** 3077;!*1* .2** /* /

.57*' ,/(' 30-2' (*7(*3*&.&.!/43' &&' .2&.' *0* 6 F
7;!,!*1' !4' .2*' >* 6' /,' > =*' # ' A!.2' .2*'
2*&1' /,' *4.2*03 g
-/(7!/' ' D!41' /,' *4>!4*' ,/(' 7(/K*-F
.!;*3' !4' *&(;!*(' .! 6 *3' !1*4.!-&;' A!.2' .2*'-&.&F
70;.' &41' !4' ;&.*(' .! 6 *3' A!.2' .2*' "<1 '
& ' *
(!'<3'8A(!.(39' 2*'2!>2*3.'-;&33'& 6 /4>'
.2*' !4,*(!/(' 7&!1' /,! -!&;3' &.' /6 *' & '
' 2*5' 1!1' 4/.' 7*(,/(6' /(1!'
4&(5' A(!.*(3' 3*(=!-*3' A2!-2' A*(*' 030&;;5'
&33!>4*1'./'3;&=*3'20.' /--07!*1'.2*' 7/3!.!/4'
/,' -;*(D3' (*>!3.(&(3'&--/04.&4.3'&41'3*-(*F
.&(!*3' ,' 37*-!&;' !67/(.&4-*' A*(*' .2*'
$ ' $ ' &..&-2*1'./' .2*' " '
' 2*5',/(6*1'.2(*'-/6 6!33!/43',/'
.*4' 6*6<*(3'*&-2'&41' D*7.' .2*' &--/04.3'
/,' .2*' .(*&30(5' A/' /,' .2*!(' 406<*('
A*(*' &;3/' &..&-2*1' ./' *&-2' 7(/=!4-!&;'
:03*3./(' &3' &--/04.&4.3' 2*' '&;3/'
/,' .2*' 1!,,*(*4.' 3*1!;*3' &41' .(!<04*3' &7F
7*&(' ./' 2&=*' ,/(6*1' &' -/6 6!33!/4' /,' .*4'
6*6<*(3' A2!;*' .2/3*' .&D*4' ,(/6' &6/4>'
.2*6' <5' .2*' -/430;3'7(.*./(3'&41'-*43/(3'
3**6' ./' 2&=*' <**4' *67;/5*1' /4;5'10(!4>'
.2*!(' .*(6' /,' /,,!-*' 2*' " ' &;3/'
2&1'.2*!('
-(!<4!03';&(>03' ' ^/6&4'7253!-!&4'
A2/' &--/67&4!*1' .2*' *67*(/(' ;&01!03'./'
(!.&!4'!4'C' ' *.A**4'.2&.'5*&(' &41'
CR' 2*' -/67!;*1' &' .(*&.!3*' /4' 6*1!-!4*'
&$ " ' " " ' A2!-2'
A*' 7/33*33' !4' &' 3/6*A2&.'!67*(,*-.',/(6'
.' -/4.&!43' @U$' 7(*3-(!7.!/43' &((&4>*1'
&--/(1!4>' ./' .2*' 7&(.3' /,' .2*' </15',/(6'
.2*' 2*&1'1/A4A&(13
-(!7./(*3' !3.,!(!6' 4>43.3*' 2*'4&6*'
>!=*4'./' .2*' 3!0' &0.2/(3' /,' <!/>(&72!*3',/'
.2*' /6&4' *67*(/(3' 04!.*1' &.' &4' 04F
-*(.&!4'1&.*' !4./' &' 3!4>;*' -/;;*-.!/4' 2*'
<!/>(&72!*3' *0.*41',(/6' &1(!&4./' 06*'
(!&4' $$U"@RC' 8A!.2' .2*' *0-*7.!/4' /,'
.2*'5*&(3'@CC"@V 9' ,' .2*'3!0'<!/>(&72*(3'
! " " = 6 " '
&41' + ' , ' A(/.*' 041*(' !/-;*F
.!&4" A ' =G ' ; '
; ' &41'. ' $ " ' 041*('
/43.&4.!43' 2;/(03' &41' /43.&4.!4*' .2*'
(*&.' 2*' <!/>(&72!*3' &(*' 6*(*;5' 1(5'
-/67!;&.!/43',(/6' .2*' ;/3.' A(!.!4>3' 8$9' /,'
&(!03' &0!603' 8A2/' &.' .2*' <*>!44!4>'
/,' .2*' (1' -*4.0(5' 041*(' ;*0&41*('
?=*(03'-/4.!40*1' .2*' A/(D' /,' 0*./4!03'
<5' A(!.!4>' .2*' ;!=*3' /,' .2*' *67*(/(3',(/6'
*(=&' ./' ;&>&<&;039' " &41' 8@9' /,' 2!3'-/4F
.*67/(&(5' 04!03' /(103' A2/' A(/.*' <!/F
>(&72!*3' /,' .2*' ;*33',&6/03' *67*(/(3' 4'
37!.*' /,' .2*!('1*,!-!*4-!*3' !4' 3.5;*' &41' 37!(!.'
.2*5' &(*' /,'=&;0*' &3' &0.2/(!.!*3',/(2!3./(5

-.!;7/4 &' 2*' A//1*4' 32/*' /,' .2*'
/6&4'7*&3&4.3' &41' 3;&=*3
-4;7 *' 2*' /(!>!4' /,' 7&!4.!4>' &3' &4'
&(.' !4' (**-*' !3' -/44*-.*1' A!.2' 1*,!4!.*'
2!3./(!-&;' 7*(3/4&>*3' 2&.' /,' 3-0;7.0(*'
!3' ;/3.' !4' .2*' 6!3.3' /,' ;*>*41' .' A&3'
(*>&(1*1' &3' &4' &(.'!67&(.*1' ./' 6*4' <5' .2*'
>/13' ,/(' 30-2' !3' .2*' .2/0>2.' *07(*33*1' !4'
.2*' &33*(.!/4' .2&.' .2*' *&(;!*3.' 3.&.0*3',*-;'
,(/6' 2*&=*4' 2*' ,!(3.' &(.!3.' 37/D*4' /,'
<5' 4&6*' ! ' A2/' !3' 6*4.!/4*1' &3'
&(;5' &3' /6(' !3' 6*(*;5' &' 7*(3/4!,!-&F
.!/4' /,' .2*' 6/3.' &4-!*4.' =&(!*.5' /,' &(.'
.2&.' A2!-2' A&3' *67;/5*1' 3/;*;5' !4' .2*'
-/43.(0-.!/4' /,' A//1*4' !6&>*3' /,' .2*' >/13'
2!3' !3' -;*&(;5' 7(/=*1' <5' 2!3' 4&6*' 8_' H' .2*'
-044!4>'&(.!,!-*(' I9' /'2!6'A*(*'&..(!<0.*1'
&' 3*(!*3' /,' !4=*4.!/43' -*(.&!4;5' 3*7&(&.*1'
,&(',(/6' *&-2' /.2*(' !4' (*37*-.' /,' .!6*' &41'
7;&-*' &41' *6<(&-!4>'!67/(.&4.'3.*73' !4' .2*'
1*=*;/76*4.' /,' A//1"-&(=!4>' &41' !4' .2*'
(*7(*3*4.&.!/4'/,'.2*' 206&4',/(6' 203'2*'
!3'3&!1'./'2&=*'!4=*4.*1'.2*'3&A'.2*'&0*'.2*'
7;066*.'.2*'>!6;*.'&41'>;0*'f ;!45'> ' '
=!!' $TRg'./' 2&=*'<**4'.2*',!(3.'./'/7*4'.2*'
*5*3'!4'.2*'3.&.0*3'/,' .2*' >/13'./'3*7&(&.*'
.2*' ;*>3'&41'./' >!=*'(**(' 6/.!/4'./' .2*'
&(63'A2!-2'2&!1'4*,/(*' 204>'-;/3*'./' .2*'
</15'f !/1/(03'!='U?g' ,.*(' 2!6'.2*'*&(;5'
-2//;'/,'3-0;7./(3'&.' .2*43' 2!3'(*70.*1'
4&.!=*' -!.5'!3'3/6*.!6*3' &;;*1'.2*'3-2//;'
/,' &*1&;03' f &03&4!&3'='@V' ' $ g' 0(!4>'
&';/4>'(*3!1*4-*'!4' (*.*' 2*'!3'3&!1'./' 2&=*'
!43.(0-.*1'.2*' (*.&43' !4' 6&D!4>' A//1*4'
!6&>*3'&-/ "<'/,'.2*'>/13' ' =!!!' V ' Rg
2*!4=*4.!/4'/,'6/1*;;!4>',!>0(*3'!4'-;&5'
,(/6' A2!-2'3-0;7.0(*'!4'<(/4Q*'/(!>!4&.*1'
!3'&33!>4*1'./'.2*' !-5/4!&4'7/..*(' ? "
&.' /(!4.2' f ;!45' OOO=' Vg' 2*'&(.'/,'
A/(D!4>'!4'6*.&;3'603.'2&=*'<**4'D4/A4'
*&(;5'!4' 2"**-*' &3' &77*&(3',(/6' .2*'
/6*(!-' 7/*63' f*B' dd' O=!!!' C?R"?NR
H'.2*' 32!*;1'/,' -2!;;*3'Ig' 4'!67/(.&4.'
3.*7'!4'.2!3'A2/'!4'.2*' U.2'-*4.0(5' !4F
=*4.*1'.2*' 3/;1*(!4>'/,'!(/4 8 *(/1/.03'!'
@V" &03&4!&3'O'$?' ' $g'&41'.2*'3/,.*4!4>'
&41' 2&(1*4!4>'/,' 6*.&;'<5',!(*' &41' A&.*('
f ;0.&(-2'5' 5 ' CUg' 2*'1!3F
-/=*(5'/,'<(/4Q*",/041!4>'!3'&..(!<0.*1'./'
- ('&41' ,! / ' /,' J6/3' &</0.'
VRN' f &03&4!&3' =!!!' $C' ' Rg' 2*' 2!>2'
&4.!:0!.5'/,' (**D'3-0;7.0(*' !4' ./4*' 6&5'
<*' !4,*((*1',(/6'&A/(D'/,'.2*'=*(5'*&(;!*3.'
7*(!/1'/,' (**D'-!=!;!Q&.!/4'.2*'7/A*(,0;'
(*;!*,'/,'.A/'07(!>2.';!/43'/=*('.2*'>&.*'/,'
.2*' -&3.;*'&.' 5-*4&*' & ' (( ) '
,!>'@ 9
-0;7.0(*' !4' 6&(<;*' &3' A*;;' &3' !4' >/;1

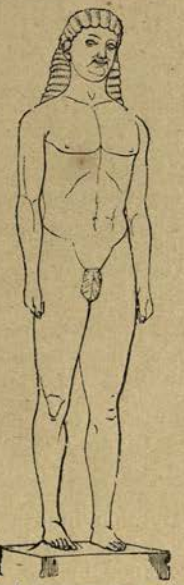
and ivory, was much advanced by two famous "pupils of Dædalus," DĬPŒNUS and SCYLLIS of Crete, who were working

(1) * PERSEUS CUTTING OFF THE HEAD OF MEDUSA.
Metope from Selinus (Museum, Palermo).

in Argos and SĬCYŌN about 550 B.C. [Pliny,

(3) * THE HARPY MONUMENT AT XANTHUS.

xxxvi §§ 9, 14; Pausanias, ii 15 § 1, 22 § 5], and founded an influential school of art in the Peloponnesus. [This school included Hēgȳlus and Thĕoclēs (Pausanias, vi 19 § 8, 17 § 2); Dontas and Dŏrȳcleidās (*ib.*, vi 19 § 12, v 17 § 1); Clĕarchus of Rhēgium (iii 17 § 6); Tectæus and Angĕlĭōn (ii 32 § 5, ix 35 § 3).] Among their works are recorded not only statues of gods, but also of heroes, often united in large groups. Some conception of the artistic productions of this period may be formed from scattered monuments still extant, originating in different parts of the Greek world; *e.g.* the rude and more primitive metopes of Sēlīnūs in Sicily (fig. 1); the statues of Apollo from the island of Thērā and from Tĕnĕā, near Corinth (fig. 2); the reliefs on the Harpy Monument from the acropolis of Xanthus in Lycia (figs. 3 and 4), etc. These works, in spite of their archaic stiffness, show an effort after individual and natural expression, though the position of the foot in striding, with the sole completely touching the ground, and the unemotional and stony smile on the mask-like face, are common to all. Even after Greek sculpture had mastered the representation of the human body, not



(2) * APOLLO OF TENEA.
(Munich, Glyptothek.)

(4) * RELIEF FROM THE HARPY MONUMENT.
(British Museum.)

/4;5 &. (*3. <0. &;3/ !4 .2* 6/3. =!/;*4. 6/=*6*4. !. 3.!;; -/4.!40*1 04&<;* ./ /=*(-/6* .2* ;!,*;*33 (!>!1!.5 /, ,&-!*! *07(*33!/4 2!3 !3 3**4 !4 .2* (/K&4 <&..;*"3-*4*3 81&.* &</0. CRN9 /4 .2* ! >!4*.&4 7*1!6*4.3 *(* .2* ,!>0(*3 &(* (*7(*3*4.*1 !4 *=*(5 =&(!*.5 /, 7/3!.!/4 !4 .2* ,!>2. &41 1*7!-.*1 4/. !41**1 A!.2 &45 !1*&;!.5 <0. A!.2 7*(,*-. 6&3.*(5 *=*4 ./ .2* 36&;;*3.1*.&!;* A2*(*&3 .2* ,&-*3 &(* *4.!(*;5 1*3F .!.0.* /, &45 *07(*33!/4 &77(/7(!&.* ./ .2*!(3!.0&.!/4 # ,!> V &41 .2* M L , "* 041*(. $()) 2* &.2;*.!-* ,/(63!4 A2!-2 .2* K >!4*.&4 2*(/*3 &(* (*7(*3*4.*1 !41!-&.* &4/.2*(!67/(.&4. *0.*43!/4 /, .2* 372*(* /, &(.!3.!-* (*7(*3*4.&.!/4 (/6 &</0. VCC (!. 2&1 <*-/6* 030&; ./ *(*-. 3.&.0*3 /, .2* =!-./(3 !4 .2* &.2;*.!-* -/4.*3.3 ;567!& *37*-!&;;5 &</041!4> !4 .2*3** fN$ VT &03&4!&3 =! $R U .2* 3.&.0*3 .2*(* 6*4F .!/4*1 &(* /, A//1 5 .2!3 !44/=&.!/4 .2* &(. A&3 ,(**1 ,(/6 .2* 4&((/A ;!6!.3 ./ A2!-2 !. 2&1 <**4 -/4,!4*1 <5 .2* .(&F 1!.!/43 /, (*;!>!/4 &41 ;*1 /4 ./ & .(0*(!6!.&.!/4 /, 4&.0(* 4 .2!3 1*7&(.6*4. .2* 3-2//; /, >!4& A&3 37*-!&;;5 &-.!=* &..&!4!4> !.3 2!>2*3. 7*(,*-.!/4 !4 .2* </(/4Q* 3.&.0&(5 /, @)(A @ &41 &</=* &;; 5 8VNN"C?N9

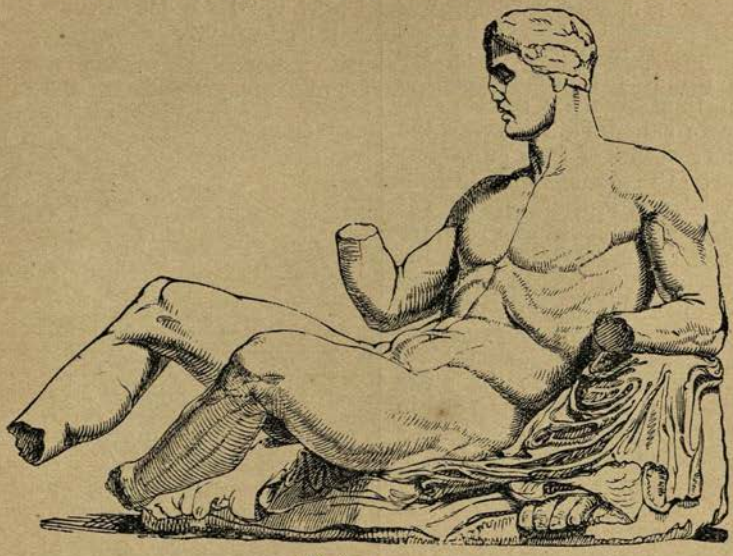
.J 0 -? "5 5 0 -5 # 5' $;=2 8 /6* &;&QQ/ &33!6!9

-0;7.0(* !4 <(/4Q* ,;/0(!32*1 3!60;.&F 4*/03;5!4 .2* *;/7/44*303 &. !-5/4 041*(" ( ) f,/(&3077/3*1 -/75 /, 2!3 7/;;/ " ( ) W &41 2!3 <(/.2*($(.2* ,/041*(/, & 3-2//; A2!-2 ;&3.*1 ;/4> &,.*(&41 &. (>/3 041*(.2*

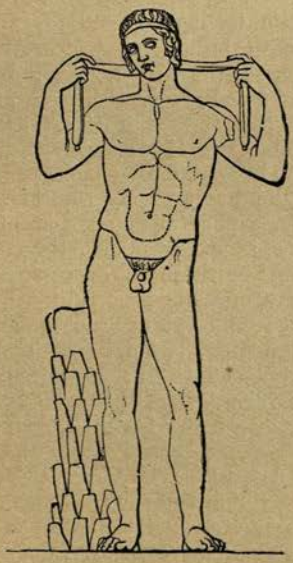
.*&-2*(/, 2!1!&3 'B(V4 &41 ;K;-; .03 2* .(&43!.!/4 ./ .2* 7*(!/1 /, .2* ,!4*3. &(. !3 (*7(*3*4.*1 <5 " & / .2*43 * 5 /, 21>!06 &41 *37*-!&;;5 0*5 &4/.2*(.2*4!&4 !4 A2/6 .2* &(. &..&!4*1 .2* 2!>2*3. .(0.2 ./ 4&.0(* A!.2 7*(,*-. ,(**1/6 !4 .2* (*7(*3*4.&.!/4

8V9 75! / ,/ .2* 206&4 </15 &41 K=&3 .203 7(*7&(*1 ,/(.2* 1*=*;/76*4./,!1*&;,/(63 2!3 ;&3. 3.*7 A&3 ."&2*4 &. .2*43 !4 .2* .!6* /, *(!-;*3 <5 A A 4 2!3 -(*&.!/43 7&(.!-0;&(;5 !4 2!3 3.&.0*3 /, .2* >/13 A2*.2*(!4 <(/4Q* /(!4 !=/(5 &41 >/;1 2* 30--**1*1 !4 -/6<!4!4> 7*(,*-. <*&0.5 /, ,/(6 A!.2 .2* 6/3. 7(/,/041 !1*&;!.5 ,!O!4> ,/(*=*(.2* !1*&;.57* ,/(L*03 &41 .2*4* .2* .A/ 1*!.!*3 A2/ A*(* 7(*"*6!4*4.;5 -2&(&-.*(!Q*1 <5 !4.*;;*-.0&; 1!>4!.5 # 4) &41 ,!>3 C &41 V 9 *(/4* /, 2!3 2*(/!- 30<K*-.3 ,!> U ,2* .2* 707!;3 /, 2!1!&3 .2* .A/ A2/ A/(D*1 6/3. 4*&(;5 !4 .2* 3&6* 37!(!. A*(* $ (A) &41 ($ .2* &0.2/(/, .2* 3-0;7.0(* /, .2* A*3.*(4 7*1!6*4. /, .2* .*67;* /, L*03 &. ;567!& 7&(./, A2!-2 3.!;; (*6&!43 2* 7*(,*-.!/4 /, ..!-&(. &. .2!3 .!6* -&4 <* (*&;!Q*1 A2*4 A* -/43!1*(.2&. A!.2 &;; .2*!(<*&0.5 /, *0*-0.!/4 .2* *0.&4 6&(<;* 3-0;7.0(*3 /, .2* &(.2*4/4 2 3 46 (*-2.2*06 &41 .2* .*67;* /, H !4>;*33 !-./(5! 603. <* (*>&(1*1 &3 6*(* 7(/10-.!/43 /, .2* /(1!4&(5 A/(D32/7 ,&3 -/67&(*1 A!.2 .2* ;/3. 6&3.*(7!*-*3 /, 2!1!&3g 2* 3-2//; /, 2!1!&3 2&1 (!=&;3 !4 .2* 4&.0(&;!3.!- 3-2//; A2!-2 ,/;;/A*1 5(/4 !4-;01!4> 2!3 3/4 *(A) &41 " $ A / , 51/4!& f /(& 3077/3*1 -/75 /, 2!3 , " W 41*7*41*4. /, </.2 3-2//;3 3.//1 &V ! /, *41 A2/3* = :&3 A*;;&3 7&(./, 2!3 3-0;7.0(*3 /4 .2* *&3. 7*1!6*4. /, .2* .*67;* /, L*03 &. ;567!& &(* 3.!;; *0.&4. W 3 !03 &41 5 *&

GAMES (fig. 1)]; and CALLĬMĂCHUS, the "inventor" of the Corinthian order of architecture [Vitruvius, iv 1 § 10] and of the application of the auger to working in marble [Pausanias, i 26 § 6]. Another school of



(7) * THESEUS.
From the west pediment of the Parthenon; also identified as either an Athenian river-god (*Ilissus* or *Cephisus*) or *Olympus*.
(British Museum.)



(8) * FARNESE DIADUMENUS OF POLYCLITUS.
(British Museum.)

sculpture in opposition to that of Athens was founded at Argos by Phidias' younger contemporary PŎLŸCLĪTUS, whose colossal gold and ivory statue of the Argive Hēra directly challenged comparison with the works of Phidias in its materials, its ideality, and its artistic form, and established the ideal type of that goddess. He mainly devoted himself, however, to work in bronze, the department in which Argos had long been pre-eminent; and made it his aim to exhibit the perfection of beauty in the youthful form (fig. 8). He also established a *cănōn* or scheme of the normal proportions of the body. Of his pupils the chief was *Naucȳdēs* of Argos.

As in the first period of Greek sculpture, represented by Myron, Phidias, and Polyclitus, the schools of Athens and Argos held the first rank beyond dispute, so it was also in the second period, which embraces the 4th century down to the death of Alexander the Great. Athens, moreover, during this period remained true to the traditions of Phidias, and still occupied itself mainly with the ideal forms of gods and heroes, though in a spirit essentially altered. The more powerful emotions, the more deeply stirred passions, of the period after the Peloponnesian War were not without their influence on art. The sculptors of the time abandoned the representation of the dignified divinities of the earlier school, and turned to the forms of those deities whose nature gave room

,/(' 3/,.*(' /(' 6/(*' *6/.!/4&;' *07(*33!/4' *37*-!&;;5' 72(1!.*' &41' !/45303' &41' .2*' -!(-;*' /,' >/13' &41' 1&*6/43' A2/' 30((/041*1' .2*6' 2*' 2!>2*3.' &!6'/,' .2*!(' &(.' A&3' ./' 7/0(.(&5'.2*' 7(/,/041' 7&.2/3' /,' .2*' 3/0;' ./' >!=*' *07(*33!/4' ./' .2*' 7;&5' /,' .2*' *6/.!/43' !.2' .2!3' !3' -/44*-.*1' .2*' 7(*,*(*4-*' /,' .2!3' 3-2//;',/(' 6&(<;*' /=*(' </(/4Q*' &3' 6/(*' 30!.*1' ,/(' (*41*(!4>' .2*' 3/,.*(' &41',!4*(' 32&1*3' /,' ,/(6' /(' *07(*3F 3!/4' 2*' &(.' /,' *0*-0.!4>' A/(D' !4' >/;1' &41' !=/(5' A&3' &;6/3.' ;/3.' .2*' (*3/0(-*3' /,' .2*' .&.*3'4/";/4>*(' 30,,!-!4>' &3' &' (0;*' ,/(' .2!3' 70(7/3*' 2*' 6/3.' *6!4*4.' /,' .2*' *A' ..!-' 3-2//;' A*(*' $(' /,' ,.(3' &41' #A $' /,' .2*43' -/7&3' &;3/' ,&6/03' &3' &4' &(-2!.*-.' A&3' &' 6&3.*(' /,' .2*' 6/3.' *;*=&.*1' 7&.2/3' (&0!.*;*3' A&3' 4/' ;*33' 6&3.*(;5' !4' (*>&(1' ./' .2*' 3/,.*(' >(&-*3' !4',*6&;*' /(' 5/0.2,0;',/(63' &41' !4' .2*' (*7(*3*4.&.!/4/,'3A**.' 6//13' /,'1(*&65' (*=*(!*' 4' 2!3' 3.&.0*3' /,' 72(/1!.*' &.' 4!103' &41' (/3' &.' 2*37!3*' 2*' *3.&<;!32*1' !1*&;' .57*3' ,/(' .2/3*' 1!=!4!.!*3' 2*' *(6*3' A!.2' .2*' !4,&4.' !/45303',/041'&.' ;567!&' (*6&!43' &3' &' 6*6/(!&;' /,' 2!3' &(.

&;!-&(4&3303' /0>2.' &;3/' ./' <*' 6*4.!/4*19' &4' /7!4!/4' 6&5' <*',/(6*1',(/6' .2*' 37!(!.*1' (*;!*,3' /4' .2*' -2/(&>!-' 6/406*4.'/,' 53;'" -(&.*3' &' &.' .2*43' *' 2&=*' &;3/" *0.&4.' !4' &' -/75' .2*' !/<!1' >(/07' &' 2

8$N9'

8 ;/(*4-*' ,,!Q!9

' -/4-*(4!4>' .2*' /(!>!4&;' /,' A2!-29' !.' A&3' 60-2' 1!370.*1' *=*4' !4' &4-!*4.' .!6*3' A2*.2*(' .2*' &0.2/(' A*(*' -/7&3' /(' (&0!.*;*3' f 245' 000=!' @Rg' 4' -/4.(&3.' /' .2*' !1*&;' &!63' /,' ..!-' &(.' .2*' !-5/" 4!&4' 3-2//;' 3.!;;' (*6&!4*1' .(0*' ./' !.3' *&(;5' 4&.0(&;!3.!-' .*41*4-!*3' &41' ./' .2*' &(.' /,' 3-0;7.0(*' !4' <(/4Q*' /,' A2!-2' (>/3' 2&1' 3/' ;/4>' <**4' .2*' 2/6*' .' .2*' 2*&1' /,' .2*' 3-2//;' 3.//1' /4*' /,' .2*' 6/3.' !4,;0*4.!&;' &41' 7(/;!,!-' &(.!3.3' /,' &4.!:0!.5' *) ' /,' ;-K./4' !3' *,,/(.3' A*(*' 1!(*-.*1' ./' (*7(*3*4.' <*&0.5' &41' 7/A*(,0;' 1*=*;/7F 6*4.' !4' .2*' 206&4' </15' 8,!>' dd' *4-*" *(,.-;*3' &3' .2*' !67*(3/4&.!/4' /,' 206&4' 7253!-&;' 3.(*4>.2' A&3' 7/0(.(&5*1' <5' 2!6' /,.*4*(' &41' A!.2' 6/(*' 30--*33' .2&4' &45' /.2*(' 1*!.5' &41' 2!3' .57*' ,0;;5' *3.&<;!32*1' " 53!7703' A&3' 6/3.' 7(/;!,!-' &3' &' 7/(.(&!.' 3-0;7./(' &' <(&4-2' /,' &(.' A2!-2' 2&1' <**4' 60-2' &1=&4-*1' !4' .2*' !4=*4.!/4' <5' 2!3" </(/.2*(' 53!3.(J.03' /,' .2*' 6*.2/1'/,' .&D!4>' 7;&3.*(' -&3.3' /,' .2*' ,*&.0(*3' f ;!45' 000A' $V $

,.*(' ;*0&41*(' .2*' (*&.' .2*' 7(&-.!-*" /,' .2*' &(.' A2!-2' 2&1' .203' 1*=*;/7*1' ./' 7*(F ,*-.' 6&3.*(5' /,' (" ' <*>&4' ./' 1*.*(!/F (&.*' A!.2' .2*' >*4*(&;*1*-&5' /,' .2*' -/04.(!*3' /,' (**-*' 7(/7*(' &41' ./' >!=*' 7;&-*' ./' .2*' ,;/0(!32!4>' &(.!3.!-' 3-2//;3' /,' 3!&' !4/(' &41' .2*' 4*!>2</0(!4>' !3;&413' 2*' -2&(F &-.*(!3.!-' /,' .2!3' 7*(!/1' !3' .2*' (!3*' /,' &' 6*.2/1' /,' .(*&.6*4.' A2!-2' 3.(!=*3' &,.*(

8T9' ' 99 ' M'+ ' + 9' ' 9 3+' 5 "= ' A']

8 ;567!&9

8,!>' T9' ,' .2*' 7(/10-.!/43' /,' .2!3' 3-2//;' 8!4' A2!-2' .2*' 4&6*3'/,' ! ' ?N ' &41' &" $) ' A2/' A&3' K/!4*1' A!.2' -/7&3' !4' 2!3' A/(D' /4' .2*' &03/;*06' &.

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their powers is furnished by the reliefs of the battle of the Giants from the acropolis at Pergamon. This work—brought to light by Humann in 1878, and now at Berlin

To Greek art in *Egypt* belong the types of Isis and Harpŏcrătēs, and the fine reclining figure of the river-god Nilus, with sixteen charming boys playing round him.

(13) * THE DYING GAUL.
(Rome, Capitoline Museum.)

—is among the most important artistic products of antiquity. (*See* PERGAMENE SCULPTURES.) To this period may also be referred with certainty the original of the celebrated *Belvedere Apollo*, which

The artistic activity of the kingdom of the Sĕleucĭdæ in *Syria* is represented by Eutўchĭdēs, a pupil of Lysippus, and his famous *Tўchē*, a work in bronze representing the presiding destiny of the city

(14) APOLLO BELVEDERE.
(Rome, Vatican.)

probably had reference to the rescue of the temple of Delphi from the Gallic army in B.C. 280, which was supposed to be the work of the god (fig. 14).

(15) * TYCHE OF ANTIOCH.
Marble statuette (Rome, Vatican).

of Antioch on the Orontēs [Pausanias, vi 2 § 6; *see* fig. 15].

After the subjugation of Greece by the

Romans in the middle of the 2nd century, Rome became the headquarters of Greek artists, whose work, though without novelty in invention, had many excellences, especially in perfect mastery of *technique*. Of the artists of the 1st century B.C. and the early imperial times the following are worthy of mention: APOLLŌNIUS of Athens (*Belvedere torso of Hercules* at Rome), GLŸCŌN (*Farnese Hercules* at Naples, *see* cut, *art.* HERACLES), and CLĔŌMĔNĒS (*Venus de' Medici* at Florence), though the works of all these are more or less free reproductions of the creations of earlier masters; also AGĀSĬĀS of Ephesus, sculptor of the *Borghese Gladiator* in the Louvre at Paris, a very fine work in the spirit of the Pergamene school (*see* cut under AGASIAS).

In the same period PĀSĬTĔLĒS, an Italian Greek of great versatility, attempted a regeneration of art on the basis of careful study of nature and of earlier productions. This movement in favour of an academic eclecticism was continued by Pasiteles' pupil, STĔPHĂNUS, who has left us a youthful figure (*Villa Albani*), and Stephanus' pupil MĔNĔLĀUS, the artist of the fine

(16) * ORESTES AND ELECTRA.
(Rome, Villa Ludovisi.)

group called *Orestes and Electra* (fig. 16). There was a revival of Greek art in the first half of the 2nd century A.D. under Hadrian, when a new ideal type of youthful beauty was created in the numerous representations of the imperial favourite Antĭnŏus (*see* cut under ANTINOUS).

The artistic work of the *Romans* before the introduction of Greek culture was under *Etruscan* influence. The art of that people was chiefly displayed in pottery and the closely connected craft of bronze-founding, which they developed with great technical skill and for which they had a special predilection. They not only filled their towns with quantities of bronze statues, Volsĭnĭi alone containing about 2,000 at the time of its conquest by the Romans in 265 B.C. [Pliny, xxxiv 34], but provided Rome also for a long time with works of the kind. Judging from the extant monuments, such as the *Mars of Todi* at the Vatican, the *Boy with a Goose under his Arm* at Leyden, and the *Robed Statue of Aulus Mĕtellus* at Florence, the character of their art seems wanting in freedom of treatment and in genuine inspiration. After the conquest of Greece, Greek art took the place of Etruscan at Rome; and, thanks to the continually increasing love of magnificence among the Romans, which was not content with the adornment of public buildings and squares, but sought artistic decoration for private dwellings, a brisk activity in art was developed, whereof numberless extant works give evidence. Beside the Greek influence, to which we owe many copies of the masterpieces of Greek art gradually accumulated in Rome, a peculiarly Roman art arose. This was especially active in *portrait sculpture*.

Portrait statues were divided, according as they were in civil or military costume, into *tŏgātæ* and *lōrīcātæ* or *thōrācātæ* (*lōrīca=thōrax*, a coat of mail). To these were added in later times the so-called *Achillēæ*, idealized in costume and pose [Pliny, xxxiv §§ 8, 118]. It was customary to depict emperors in the form of Jupiter or other gods, and their wives with the attributes of Juno or Venus. Of the innumerable monuments of this description special mention is due to the statue of Augustus in the Vatican (fig. 17); the marble equestrian statues of Balbus and his son at Naples (found at Herculaneum); the bronze equestrian statue of M. Aurēlius on the square of the Capitol at Rome; the seated statues of Agrippina the elder in the Capitoline Museum, and the younger at Naples.

Hand in hand with portrait sculpture went the art of *historical reliefs*. In ac-

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&' 6&!1*4' &</=*' <0.' &3' *41!4>' <*;/A' !4' .2*' </15' /,' &',!32' <*>!(.' A!.2' 2!1*/03' 1/>3
8@9' &0>2.*(' /,' !303' #1
-5;;!3 ' (**D' 3-0;7./(' ,(/6' (*.*' A2/' A/(D*1' &</0.' .2*' 6!11;*' /,' .2*' ?.2' -*4.0(5' ' "' !4' (>/3' &41' !-5/4' &41' A2/' A!.2' 2!3' -/04.(56&4' ;7-*403' ,/041*1' &4' !4,;0*4.!&;' 3-2//;' /,' &(.' !4' .2*' *;/7/4F 4*303' f ;!45' >' ' 000=!' T' $C'' &03&'' 4!&3' !!' $V `' $' @@' `' Vg' # ' $( )
-56403' ' (**D' >*/>(&72*(' ,(/6' 2!/3' &0.2/(' /,' &' ;/3.' 1*3-(!7.!/4' /,' .2*' *&(.2' 2*(*' 2&3' <**4' A(/4>;5' &..(!<0.*1' ./' 2!6' &' ,(&>6*4.' /,' &' 1*3-(!7.!/4' /,' .2*' *&(.2' -/67/3*1' !4' !&6<!-' " ' 1*3-(!<F !4>' .2*' -/&3.' /,' 0(/7*' ,(/6' .2*' !;;&(3' /,' *(-0;*3' ./' 7/;;/4;&' !4' /4.03' 2*' 04D4/A4' &0.2/(' ;!=*1' !4' !.254!&' &41' 1*1!-&.*1' 2!3' A/(D' A2!-2' !3' -/67/3*1' ,(/6' >//1' 3/0(-*3' <0.' !4' &' 3/6*A2&.' 7*1&4.!-'./4*'./'D!4>' !-?6`1*3'7(/<&<;5' !-/6*1*3' '8T$"U?' ' (
05 " %8 (' (' </A;"32&7*1' -07' & '1
-K,.&;*' ' 3.&,' 03*1' *37*-!&;;5' !4' 7&(.&' <5' .2*' *72/(3' ,/(' .2*!(' 3*-(*.' 1*F 37&.-2*3' ./' /,,!-!&;3' 7&(.!-0;&(;5' ./' -/6F 6&41*(3' !4' ,/(*!>4' -/04.(!*3' ' 4&((/A' 3.(!7' /,' A2!.*' ;*&.2*(' A&3' A/041' &</0.' &' (/041' 3.&,,' 3/.2&.' .2*' *1>*3' -&6*' *0&-.;5' ./>*.2*(' !.' A&3' .2*4' A(!..*4' /4' -(/33F A!3*' &41' 3*4.' ./' !.3' 1*3.!4&.!/4' &,.*(' <*!4>' 04(/;*1' &>&!4' 2&.' 2&1' <**4' A(!..*4' -/0;1' /4;5' <*' (*&1' A2*4' .2*' 3.(!7' A&3' &>&!4' A/041' (/041' &4' *0&-.;5' 3!6!;&(' 3.&,,' 30-2' &3' A&3' >!=*4' ./' *=*(5' /,,!-!&;' A2*4' >/!4>' &<(/&1' /4' 70<;!-' 3*(=!-*
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1*3-(!<*1' &3' &' <*&0.!,0;' A/6&4' A!.2';/4>' A!4>3' &41'>/;1*4' 1!&1*6' ,(/6'A2!-2' 32*

32*1 & 6 !;1 ;!>2. f / 6 *(!- 5 6 4 000!! Ug (!1!4> !4 & -&(1(&A4 <5 .A / A2!.* 2/(3*3 /(6 0;*3 /(-/A3 2* 2/(43 / , .2* ;&..*(% 56</;!3*1 .2* -(*3-*4. 6 //4 4 ;&.*(.!6 *3 32* A&3 !1*4.!,!*1 A!.2 (. 6!3 8/(*;3* A!.2 -&.* &41 *(3`72V4*9 &3 A&3 *;;/3 A!.2 2/*<03 7/;;/ &41 .2*(*,/(*A&3 2*(3*;, -&;;*1 , (,.*(.2!3 32* A&3 &;3/ (*>&(1*1 &3 & 204.(*33 &41 &(-2*((*-/>4!3&<;* <5 2*(-(*3-*4.*&3 .2* >/11*33 / , .2* 6 //4 2* A&3 A/(32!77*1 /4 .2* 1&53 / , .2* 4*A &41 ,0;, 6 //4 2* </(* ./ L*03 & 1&0>2.*(&41!& A/(32!77*1 &. .2*43 A!.2 2*(,&.2*(&. .2* ,*3.!=&; / , &41!& f *6 @$ `Tg 4 2*(;/=* ,/(B 4156 ;/4 *& *;;& 3*&. 4 !.3 03* &3 & (&41 & .2/3* &(.!-;*3 *;;& 2(0;!3 2* &.!4 .*(6 ,/(.2* -2&!(/, /,! -* <*;/4>!4> ./ .2* -0(0;* 6&>!3.(&.*3 8//..30;3 7(&*./(3 -0(&;* &*1!;*3 1!-.&./(1 &41 . &41 &;3/ ./ .2* *67*(/(3 .A&3 / , !=/(5 A!.2/0.2 & <&-D &41 A!.2 -0(=*1 ;*>3 ;!D* .2/3* / , & -&67"3./ / 3/ &((&4>*1 .2&. !. -/0;1 <* ,/;1*1 07 2* 3*&. A&3 / , 7;&!.*1 ;*&.2*(3.(&73 2* -0(0;* 6&>!3.(&.*3 3&./4 .213 3*&. A2!;* *4>&>*1 !4 &; /,,!-!&; <03!4*33 &41 &;3/ ./!D !. A!.2 .2*6 !4 A&(*;;! ?6V$* &0>2.*(/, &1603 &41 &(" 6V4;& <*;/=*1 /, L*03 *(& (*&;/03 /, 2*(.//D .2* ,/(6 /, 2*(40(3* *(,!* &41 !410-*1 2*(./ /<.&!4 /, L*03 & 3/;*64 7(/6!3* ./ ,0;,!; 2*(A!32 &41 .2*4 ./ (*:0*3. 2!6 ./ 32/A 2!63*;,./ 2*(!4 &;, 2!3 1!=!4*37;*41/0(2*4 L*03 &77*&(*1 &6!1 .2041*(&41 ;!>2.4!4> *6*;* A&3 S/4306*1 <5 .2* ,,&6*3 &41 15!4> >&=* <!(.2 ./ & 3!0 6/4.23 -2!;1 !/45303 A2/6 L*03 3&=*1 ,(/6 .2* ,!(* &41 2!1 !4 2!3 .2!>2 .!;;.2* 10* .!6 * / <!(.2 *(3/4 /4 <*!4> 6&1* & >/1 (&!3*1 2*(07 ,(/6 .2* A/(;1 <*;/A &41 3*. 2*(!4 .2* 2*&=*43 041*(.2* 4&6 * / +(: " J e *) f &41 ,/(!/45303 &41 *6*;* 0 *6*4.!=&3 *(;3* ,*3.!=&; / , 3**1F .!6 * -*;*<(&.*1 !4 2/4/0(/ , *;;03 & *6433 4&6 * / ,.2* (!45*3 & *6143 2* &.!4 4&6 * ,/(-*(.&!4 307*(4&.0(&;* <*!4>3 2*5 &77*&(./ 2&=* <**4 ;!D* .2* &D!41 / , 6 " /(1*6!>/13 &41 >0&(1!&4 1*!.!*3 / , .2* .&.* f 2* A/(1 2&3 / ,.*4 <**4 ,./44*-.*1 A!.2 %V*" ./ 3/A 8-7 2 " &41 A/0;1 .203 6*&4 H 3/A*(3 Ig (k " $ ( ) *67(/4!03 3*;;!/ /6&4 &44&F ;!3. & *4&.* & " ,(/6 " -&4 /;1 6&49 2* /6&4 .&.* -/04-!; -/43!3.!4> !4 .2* *&(;!*3.!6*3 / , /4* 2041(*1 6*6<*(3 <0. <*,/(* .2* *070;3!/4 / , .2* &(:0!43 !4F -(*&3*1 ./ .2(** 2041(*1 A2!-2 ,/(&;/4> .!6* (*6&!4*1 !.3 4/(6&; 406<*((!>!F 4&;;5 4/4* <0. 7&.(!-!&43 & ! A*(* *;!>!<;* ,/(6*6<*(32!7 <0. 8!, .(&1!./4 6&5 <* .(03.*1 !4 .2* .!6* / , .2* ;&3. D!4>3 7;*<*!&43 *37*-!&;;5 .2/3* / , *:0*3F .(!&4 (&4D A*(* &16!..*1 &41 /4 .2!3 &--/04. .2* 3*4&./(3 A*(* -&;;*1 <5 .2* -/;;*-.!=*.!.;* / , & $ 41*(.2* *70<;!- .2* 7;*<*!&43 A*(* *;!>!<;* ,/(6*6<*(32!7 ,(/6 .2* /0.3*. .2/0>2 .2*5 /4;5 &-:0!(*1 <5 1*>(**3 .2* (!>2. ./ A*&(.2* 1!3.!4>0!32!4> 1(*33 2* *;*-.!/4 / , 3*4&./(3 & " (*3.*1 10(!4> .2* (*>&; 7*(!/1 &3 & (0;* A!.2 .2* D!4> &41 .2* *10(!4> .2* *70<;!- &; ,!(3. A!.2 .2* -/430;3 &,.*(F A&(13 A!.2 .2*-*43/(3 A2/ &;3/ 2&1 7/A*(./ *07*;04A/(.25 6*6<*(3 /.2*(A!3* .2* /,,!-* A&3 2*;1 ,/(;!,* 16!33!/4 ./ .2* *4&.* -/0;1 <* -;&!6*1 <5 .2* -0(0;* 6&>!3.*&.*3 A2/ &,.*(;&5!4> 1/=.6 .2*!(/,,!-* 7/33*33*1 .2* (!>2. / , *07(*33!4> .2*!(/7!4!/4 !4 .2* *4&.* & " " 04.!; .2* 4*0. -*4303 &. A2!-2 .2* -*43/(3 -/0;1 /4;5 7&33 .2*6 /=*(/4 3.&.!4> 37*-!&; >(/.613 , /(3/1/!4> *0. ./ .2*3* A*(* -/43!1*(*1 .2* -;&!63 / , .2* 7;*<*!&4 I1!;*3 .2* .(!<04*3 &41 .2* :063./(3 A2/ ;/3. .2!3 (!>2. 1.2 .2* *07!(&.!/4 / , .2*!(/,,!-* &41 .2* 6/3. A*&;.25 -;&33 / , -!.!0*43 .2* D4!>2.3 A2/ 2/A*=*(!, .2*5 2&1 4/. 5*.<**4 *;*-.*1 ./ &45 /,,!-* .//D & ;/A*((&4D 041*(.2* 4&6 * / &.!1 A*(* /4;5 *4.!.;*1 ./ *07(*33 .2*!(&33*4. ./ .2* 7!4!/4 / , /.2*(3 2*4 .2* :063./(3 3/ A*(* (*>0;&(;5&11*1 ./ .2* *4&.* .2* 6!4!606 &>* ;*>&;5 :0&;!,5!4>, /(6*6<*(32!7 A&3 ,!0*1 &. .A*4.5"*!>2. 5*&(3 4 -/0(3* / , .!6 * & ;*>&; -;&!6 ./ &16!33!/4 A&3 >&!4*1 <5 .2* .(!<04*3 &41 7;*<*!&4 I1!;*3 &41 ,!04&;5 &;3/ <5 .2* :0I3./(3 .2(/0>2 .2* *4&-.6*4. / , 0;;& A2/ !4-(*&3*1" .2* *4&.* <5 .2* 406<*(/ , .2(** 2041(*1 D4!>2.3 *;*-.*1 <5 .2* 7*/7;* &41 -/4F ,*((*1 /4 .2* :0I ./(3 4/A !4-(*&3*1 ./ .A*4.5 .2* (!>2./,&16!33!/4 ./ .2* *4&.* !66*1!&.*;5 &,.*(.2* *07!(&.!/4 / , .2*!(/,,!-* I3&((&!3*1 .2* 406<*(/ , 3*4&F ./(3 ./ TNN &41 041*(.2* .(!06=!(3 !.*=*4 (/3* <*5/41 $NNN 0>03.03 2/A*=*(;!6!.*1 !. ./ ?NN ,!0*1 .2* 3*4&./(!&; &>*

B<03!4*33 04;*33 !. A&3 -;&!6*1 <5 .2* G*67*(/(A2/ -/0;1 &;3/ &. &4 *0.(&/(F 1!4&(5 6**.!4> .&D* 7(*-*1*4-* / .2* 6&>!3.(&.* A2/ -/4=/D*1 !. 2* *67*(/(030&;;5 -&03*1 2!3 &11(*33 ./ 2* (*&1 ,/(2!6 !4 .2* ,/(6 /,&37**-2 <5 .2* 8 " 3 .&4 &01!*4-* /,&6<&33&1/(3 .2*!(37**-2*3 A*(* 2*&(1 <*,/(* .2* <03!F 4*33 A&3 ;&!1 <*,/(* .2* 6**.!4> ,.*(.2!3 ,/;;/A*1 .2* H :0*3.!/4!4>I & 1 G/,.2* 3*4&./(3 -&;;*1 /4 /4* &,.*(&4/.2*(<5 4&6*!4 /(1*(/ .2*!((&4D &41 3*4!/(!.5 d /A&(13 .2* *41 / ,.2* *70<;!-&41 041*(.2* 67!(* &,.*(.2* -/430;&(*;*-.!/43 .2* -/430;3"1*3!6&.* -&6* ,!(3 ,.2* *67*(/(2!63*;,A&3 7(*3!1!4>2* -&;;*1 E(3./4 .2* -/430;3 .2*4 !4 /,,!-* 2* 3*4&./(3 3/ -&;;*1 07/4 *!.2*(3.//1 07 !4 .2*!(7;&-* &41 1*;!=*(*1 .2*!(/7!4!/43 !4 & 37**-2 !4 A2!-2 .2*5 A*(* &<;* 8&3 3/6*F .!6*3 2&77*4*19 ./ ./0-2 /4 /.2*(6&..*(3 .2&4 .2* /4* !4 2&41 /(A!.2/0. (!3!4>1*-;&(*1 .2*!(&33*4. ./ 3/6* /7!4!/4 &;F (*&15 1*;!=*(*1 ,.*(.2*1!,,*(*4./7!4!/43 2&1 <**4 1*;!=*(*1 .2*5 A*(* -/;;*-.*1 ./>*.2*(<5 .2* 7(*3!1*4. &41 &((&4>*1 /("=/.!4> G/4 2* =/.!4>./!D 7;&-* <5 V HX /(3*7&(&.!/4 !4./>((073 .2* 307F 7/(.*(3 /,.2* =&(!/03 =!*A3 .&D!4>07 .2*!(7/3!.!/4 ./>*.2*(<&(* 6&K/(!.5 1*-!1*1 .2* :0*3.!/4 ,.2*(* A&3 &45 1/0<. .2* 406<*(3 A*(* -/04.*1 ,.*(.2* 1!=!3!/4 .2* 7(*3!1*4. 1!3 6!33*1 .2* *4&.* !4 /(1*(A!.2 .2* &!1 /,&-/6F 6!..**/,3*4&./(3 ./ 1(&A! 07 .2* (*3/;0F .!/4 /,.2* *4&.* # " /4 .2* ;!4*3 /,.2* 6!40.*3 /,.2* 6**.!4> 04;*33 &4 /<K*-.!/4 ./ !. A&3 (&!3*1 <5 &45 %/,.2* ,,!-!&;3 7(*3*4. 2* (*3/;0.!/4 A&3 2*&1*1 A!.2 .2* 4&6*3 /,.2* /430;3 ,/;;/A*1 <5 .2* 1&.* &41 7;&-* /,6**.!4> .2* 4&6*3 /,.2* 7(/7/3*(3 &41 "/,.2* 6*6<*(3 /,.2* -/6 6!..**,/(1(&A!4> 07 .2* (*3/;0.!/4 ;&3. /,&;,/;;/A*1 .2* (*3/;0.!/4 !.3*;, 1(&A4 07 !4 -*(.&!4 ,!0*1 ,/(63 2* (*3/;0.!/43 /,.2* *4&.* A*(* G-/6 604!-&.*1 ./ .2/3* -/4-*(4*1 <5 A/(1 /,6/0.2 /(<5 A(!.!4> 2/3* .2&.*(*;&.*1 ./ .2* 4&.!/4 A*(* 70<;!32*1 <5 .2* 6&>!3F .(&.*3 &. .2* 7/70;&(&33*6<;5 /(<5 6*&43 /,A//1*4 8/(!4 37*-!&; -&3*3 <(/40* .&<;*.3 70<;!-;5 1!37;&5*1 ,(*3/;0.!/43 &,,*-.!4> !4.*(4&.!/4&;(*;&.!/43 .A/ -7!*3 /4 <(/40* A*(* 7(*7&(*1 /4* /,A2!-2 A&3 204> 07 !4 .2* .*67;*/,) &. /6* .2* /.2*(!4 & .*67;*/,.2* /.2*(4&.!/4 -/4-*(4*1 *3/F ;0.!/43 /,.2* *4&.* A*(* 7(*3*(=*1 !4 *&(;5 .!6*3 !4 .2* /,,!-* /,.2* 7;*<*!&4 3*1!;*3 ;&.*(!4 .2* >3 .2* /,,!-* /,.2* :0&*3./(3 41*(.2* /4&(-25 .2* 7/A*(/,.2* *4&.* A&3 =*(5 ;!6!.*1 .3 6/3. !67/(" .&4. 7(!=!;*>* A&3 .2* 7/A*(/,&77/!4.!4> &4 " -1 &,.*(.2* 1*&.2 /,& D!4> ,/(.2* 70(7/3* /,-&((5!4> /4 <03!4*33 &41 4/6!4&.!4> & 4*A D!4> 0(!4> .2* *F 70<;!-! 3//4 *0.*41*1 !.3 !4,;0*4-* &3 !. 2&1 ./ <* -/430;.*1 &41 !.3 &1=!-* ,/;F ;/A*1 <5 .2* 6&>!3.(&.*3 /4 &;; !67/(.&4. 6*&30(*3 /,&16!4!3.(&./!/4 .;*4>.2 .2* A2/;* >/=*(46*4. /,.2* .&.* -&6* 7(&-.!-&;;5 !4./ !.3 2&413 &41 .2* 6&>!3F .(&.*3 A*(* /4;5 .2* !43.(06*4.3 ,/(-&((5F !4> /0. !.3 A!;; .3 7(*1/6!4&4-* ,/041 *07(*33!/4 !4 !.3 .&D!4> .2* ,!(3. 7;&-* !4 .2* A*;;"D4/A4 ,/(60;&L " / / ! " *37*-!&;;5 &3 .2!3 A&3 *67;/5*1 *=*4 !4 -&3*3 A2*(* .2* *4&.* &-.*1 A!.2F /0. .2* -/"/7*(&./4 ,.2* 7*/7;* 4 .2* .!6* /,.2* (&--2! .2* 7/A*(/,.2* *4&.* 30,,*(*1 & 1*&1;5 <;/A A2!-2 !. 2&1 ./ &>(*&.*0.*4. <(/0>2. 07/4 !.3*;, 4 7&(F .!-0;&(!. <*-&6* -03./6&(5 ./ &,,!0 ./ (*F 3/;0.!/43 /,.2* 7*/7;* & 3.!70;&!/4 .2&.* A!.2!4 &,*A 1&53 .2* *4&.* 32/0;1 3A*&(&;;*>!&4-* ./ .2*6 2* ;&3. -*4.0(5 (3&A .2* -/67;*.* 1/A4,&;;/,.2* *4&.*3 &0.2/(!.5 0>03.03 &..*67.*1 ./ (&!3* !. <5 *=*(5 6*&43 &. 2!3 1!37/3&; 0. !4 37!.* /,!67/(.&4.7(!=!;*>*3 -/4,*((*1 07/4 !. .2* *4&.* /4;5 7/33*33*1 .2* 3*6<;&4-* /,7/A*(!4 /77/3!.!/4 ./ .2* 6!;!.&(5 /(-* /, .2* *67*(/(,.*(A&(13 !. 3&4D ./ & 6*(* 32&1/A A2*4 ,(/6 .2* .!6* /,&1(!&4 4A&(13 &37*-!&;!67*(!&;-/04-!; .2* " " A&3 !43.!.0.*1 ./ 1*&;A!.2 6&..*(3 /,7&(&6/04. !67/(.&4-* ñ 2* 7(!4-!7&; 10.!*3 /,.2* *4&.* -/4 3!3.*1 !4 8$9 .2* 307*(=!3!/4 /,(*;!>!/4 A2!-2 !. (*.&!4*1 *=*4 041*(.2* 67!(* 2!3 !4-;01*1 .2* 6&!4.*4&4-* /,.2* .&.* (*;!>!/4 .2* !4.(/10-.!/4 /,/(*!>4 A/(F 32!73 &((&4>!4>,(.2* -/430;.&.!/4 /,.2* !<5;;!4* <//D3 .2* *3.&<;!326*4. /,4*A* ,*3.!=&;3 >&6*3 ,*3.!=&;3 ,/(7(&5*(&41 .2&4D3>!=!4> *.- 9 41*(.2* 67!(* .2* *4&.* 2&1 &;3/ .2* 4/6!4&; -/4.(/; /,.2* .&.* .(*&30(5 04.!; .2!3 A&3 &6&;>&6&.*1 A!.2 .2* !6F 7*(!&; 8 9 4 (*,*(*4-* ./ /(*!>4 &,,&!(3 .2* *4&.* 2&1 -/43!1*(&<;* !4F ,;0*4-* /=*(.2* 1*-;&(&.!/4 /,A&(.2* 4/6!4&.!/4 /,-/66&41*(3 .2* 1*-!3!/43 ,/(.2* ;*=5 /,(//73 &41 A&(.&D*3 .2*

7(/=!4-*3' (*A&(13' 830-2' &3' .(!06723' &41' /.2*(39' &41' .2*' -/4-;03!/4' /,' 7*&-*' &41' .2*' (&.!,!-&.!/4' /,' .(*&.!*3' 0(.2*(6/(*' .2*' *4&.*' 2&1' 307(*6*' 7/A*(' !4' &;' 6&..*(3' /,'1!7;/6&-5' &3' !.' &77/!4.*1' &6<&33&1/(3' (*-*!=*1' &41' >&=*' &01!*4-*' ./' ,/(*!>4' &6<&33&1/(3' &41' -/4,*((*1' 30-2' ./D*43' /,' 2/4/0(' &3' .2*' .!.;*3' /,' -/4,*1*(&.*3' &41' ,(!*413' /,' .2*' /6&4' 7*/7;*' =*(' .2*' 30<K*-.3' /,' .2*' /6&4' 7*/7;*' !.' *0*(-!3*1' &4' &;6/3.' 3/=*(*!>4' &0.2/(!.5' 7&(.!-0;&(;5' !4' (*,*(*4-*' ./' .2*' &33!>4!4>' /,' 7(/=!4-*3' 41*(' .2*' 67!(*' !.' (*.&!4*1' -/4.(/;' /,' .2*' 3*4&./(!&;' 7(/=!4-*3' &;/4*' .' A&3' 3.!;;' 3/6*.!6*3' -/430;.*1' &</0.' -/4-;01!4>' 7*&-*' &41' (&.!,5!4>' .(*&.!3*3' &41' &</0.' <(43!4*33' A!.2' ,/(*!>4' &;;!*3' &41' &;3/' 2&1' .2*' (!>2.'/,' -/4,*((!4>' 30-2' 2/4/0(3' &3' .2/3*' /,' &7/.2*/3!3' /(' /,' 3.&.0*3' &41' .(!06723' 4' .2*' /.2*(' 2&41' !.3' !4,;0*4-*' /=*(' 6!;!F .&(5' 6&..*(3' -/0;1' 4/' ;/4>*(' -/4.!40*' 3!1*' <5' 3!1*' A!.2' .2*' 6!;!.&(5' 7/A*(' /,' .2*' *67*(/(' 8C9' 4' ;*>!3;&.!/4' !.' *0*(-!3*1' -/43!1*(&<;*' !4,;0*4-*' 10(!4>' .2*' *70<;!-' &3' !.' 7(*7&(*1' ;*>!3;&.!=*' 7(/7/3&;3' ./' <*' <(/0>2.' <*,/(*' .2*' 7*/7;*' <5' .2*' 6&>!3F .(&.*3' &41' 2&1' .2*' (!>2.'/,' -/4,*((!4>' 30-2' 2/4/0(3' &3' .2/3*' 7&33*1' <5' .2*' 7*/7;*' !4' .2*' *=*4.' /,' .2*!(' <*!4>' 1*,*-.!=*' !4' 7/!4.'/,' ,/(6' .3' (*3/F ;0.!/43' &;3/' <5'=!(.0*' /,' &D!41'/,' 7(*3-(!7F .!/4' 2&1' -/43!1*(&<;*' 3.&.0./(5' &0.2/(!.5' 41*(' .2*' 67!(*' A2*4' .2*' ;*>!3;&.!=*' 7/A*(' /,' .2*' 7*/7;*' A&3' *4.!(*;5' &</;!32*1' .2*5' 2&1' &0.2/(!.5'-/67;*.*;5'*:0&;' ./' .2&.' /,' .2*' ;&A3' .2*63*;=*3' 2*5' A*(*' 2/AF *=*(' 6*(*;5',/(6&;' (&.!,!-&.!/43' /,' .2*' A!;;' /,' .2*' *67*(/(' A2/' !4' *=*(5'5*&(' *0&-.*1' ,(/6' .2*' *4&.*' /4' &40&(5'$3.' &4' /&.2' /,' &;;*>!&4-*' ./' 2!3' !41*7*41*4.' *4&-.6*4.3' 4' .2*' &--*33!/4' /,' &' 4*A' *67*(/(' .2*' *4&.*-/4,*((*1'/4'2!6'.2*' !67*(!&;' 7/A*(' <5' &4' *4&-.6*4.' .*(6*1' -' 1 *' .2!3' 2/A*=*(' A&3' &' 6*(*',/(6&;!.5' 8?9' 0(!4>' .2*' (*70<;!-&4' &>*' .2*' *4&.*' 7/33*33*1' 4/' K01!-!&;' 7/A*(' /,' !.3' /A4' 8&7&(.',/(6' .2*' ,&-.' .2&.' 04.!;' .2*' .!6*' /,' .2*' (&--2!' .2*' K01>*3' &;' <*;/4>*1' ./' .2*' 3*4&./(!&;' /(1*(9' <0.' .2*' 6&>!3.(&.*' /4;5' &-.*1' &3' &1=!3*(' ./' .2*' K01>*3' !4' -(!6!4&;' K0(!31!-.!/4' !4' *&3*3' /,' .(*&3/4' &41' 7*(K0(5' /4' .2*' 7&(.' /,' &;;!*3' &41' 30<K*-.3' &41' !4' 3*(!/03' -&3*3' /,' 7/!3/4!4>' &41' 60(1*(' 30-2' &3' *41&4F >*(*1'.2*' 70<;!-&4' &>*' .2*' *4&.*' 7/33*33*1' 4/' 41*(' .2*' 67!(*' *4&.*' 7/33*33*1',/(6&;' K0(!31!-.!/4' !4' -&3*3' /,' <(*&-2' /,' -/4.(&-.' 1!3.0(<&4-*' !4' .&;5' 6&;7(&-.!-*3' !4' /,,!-*' &41' *0./(.!/4' /,' 7(/=!4-!&;' >/=*(4/(3' &41' *37*-!&;;5' &;' -&3*3' /,'2!>2'.(*&3/4' &41' /,,*4-*3/,'3*4&./(3' (/6' .2*' @41' -*4.0(5'/4A&(1' &;' .2!3' K0(!3F 1!-.!/4' 7&33*1' /=*(' ./' .2*' !67*(!&;' -/0(.3' 8?9' 0(!4>' .2*' *70<;!-' .2*' *;*-.!/43' A*(*' /4;5' !41!(*-.;5' 041*(' .2*' !4,;0*4-*' /,' .2*' *4&.*' <5' 6*&43' /,' .2*' 7(*3!1!4>' /,,!-!&;3' &41' &;3/' /A!4>' ./' .2*!(' (!>2.' /,' &440;;!4>' *;*-.!/43' /4' .2*' 3-/(*' /,' 6!3.&D*3' !4' ,/(6' &41' ;&3.;5' <5' 2&=!4>' .2*' &77/!4.F 6*4.' /,' .2*' 1&53' ,/(' .2*' *;*-.!/43' 41*(' .2*' 67!(*' !.' >&!4*1' ,(/6' !<*(!03' .2*' (!>2.' /,' 7(/7/3!4>' &;;' .2*' 6&>!3.(&.*3' A!.2' .2*' *0-*7.!/4' /,' .2*' -/430;3" .2!3' (!>2.' 2/A*=*(' A&3' (*41*(*1' !43!>4!,!-&4.' <5' .2*' ,&-.' .2&.' .2*' -&41!1&.*3' A*(*' (*-/66*41*1' <5' .2*' *67*(/(' 2*' (!>2.' &;3/' /,' 4/6!F 4&.!4>' .2*' *67*(/(' A2!-2' !.' -;&!6*1' A2*4' .2*' /--07&4.' /,' .2*' .2(/4*' A&3' (*6/=*1' <5' =!/;*4-*' A&3' /A!4>' ./' .2*' 7(&-.!-&;' 7/A*(' /,' .2*' &(65' &3' !.;;03/(5' &3' !.3' 7(*.*41*1' (!>2.' /,' 1*7/3!.!/4 4&.03' /434;.06' ?4?-' 8$9' "" ' (' ("# </(4' /,' &4' *:0*3.(!&4',&6!;5' &.' /(1!!<&' &$ ' !4' 7&!4' ./A&(13' .2*' *41' /,' .2*' *70<;!-' 4' .2*' .!6*' /,' 0>03.03' 2*' 3.01!*1' &.' /6*' A2*(*' 2*' ;!=*1' !4' !4.!F 6&-5' A!.2' .2*' 6/3.',&6/03' (2*./(!-!&43' &41' /(&./(3' &41' 1!*1' &.' &' =*(5'>(*&.' &>*' 7(/<&<;5'4/.'.!;;'&,.*(' .2*' 1*&.2'/,' !<*(!03' 8 U') ' f *' A&3' .2*' ,&.2*(' /,' *4*-&' .2*' 72!;/3/72*(' &41' 8<5' 2!3' 3/4' *;&9' >(&41,&.2*(' /,' 0-&4'.2*'7/*.g' --/(1!4>' ./' .2*' .*3.!6/45' /,' *4*-&' .2*' 72!;/3/72*(' 2*' A&3' &' 6&4' /,' 7(!3.!4*' =!(.0*' &41' 3*=*(!.5' 60-2' 1*=/.*1' ./' .2*' 6&!4.*4F &4-*' /,' &4-*3.(&;' -03./63' f *4*-&' ' $U' M' ' ' " 2' ' 1 *' ' " " ' 2' 3 [' 3' &' 3.5;!3.' 2*' A&3' &' >(*&.' &16!(*(' /,' !-*(/' 4'2!3' /;1'&>*' (*;5!4>' 3!67;5'/4'2!3'6&(=*;;/03'6*6/(5'2*' -/6F 7/3*1' &.' 2!3' 3/43' 1*3!(*' &' -/;;*-.!/4' /,' 1*-;&6&.!/43' ,/(' .2*' 03*' /,' 3-2//;3' /,' (2*./(!-' 6/1*;;*1' /4' .2*' .(*&.6*4.'/,' .2*' 30<K*-.3' <5' .2*' 6/3.',&6/03' (2*./(!-!&43' /,' 2!3'5/0.2' .' <*&(3' .2*' .!.;*' ' 7(' " " ' 5 " ' $ ' /4*' </!D' -/4.&!4!4>' 3*=*4' .2*6*3' -&;;*1' ' &41' .*4' </!D3' .2!(.5",!=*' " 2' ' ,' .2*3*' A*' 4/A' 7/33*33' /4;5' </!D3' !' !!' =!!' !0' 0' &41' .2*' >(*&.*(' 7&(.' /,' .2*' !4.(/10-.!/43' ./' </!D3' !!!' &41' !=' <*3!1*3' &4' &<3.(&-.' /,' .2*' A2/;*' <*;/4>!4>' ./' .2*' C.2' /(' V.2' -*4.0(5' 2*' -/4.*4.3' >!=*' &' = 61' 7!-.0(*' /,' .2*' A/(D' /,' .2*' 3-2//;3' /,' (2*./(!-' !4' .2*' .!6*' /,' 0>03.03' &41' !<*(!03' &41' &(*' &4' !67/(.&4.' &0.2/F (!.5',(' .2*' 2!3./(5' /,' /6&4' (2*./(!- 8@9' ;" ' "" ' (' ((!' 3/4' /,' 8$9' </(4' &.' /(1!!<&' &<0.' V &

.2&. /, .2* &4-!*4. 1(&6&.!3.3 30-2 &3 44!03 &41 &-,!=!03g 4 .2*!(7/!4.*1 *07(*33!/4 .2*5 *02!<!. .2* 3&6* .&;*4. ,/(3.5;* &3 2!3 7(/3* A/(D3 .2* 3&6* -/7!/034*33 72!;/3/72!-&; <*4. &41 (2*F ./(!-&; 6&44*(8.2* ;&3. ,(*:0*4.;5 -&((!*1 <*5/41 .2*;!6!.3 /, .&3.*9 2*5 3**6 ./ 2&=* <**4 1*3!>4*1 6/(* &3 1*-;&6&./(5 *0*(-!3*3 .2&4 ,/(&-.0&; 7*(,/(6&4-* /4 .2* 3.&>* Y

7.(!V4 ,*3.!=&; -*;*<(&.*1 *=*!B 4!4* 5*&(3 &. *;72! !4 6*6/(5 /, .2* 3;&5!4> /, .2* 3*(7*4. '5.2?4 <5 7/;;/ 8 ;0.&(-2 T " 6 $@ 8A2*(* 3/6 *.*0.3 2&=* " &41 5 & $V g

7.;6!:3 8L ,;-# 39 2 .(&43;&./(!4./ &.!4 /, .2* 370(!/03 A/(D /, !-.53 8K @9 /4 .2* (/K&4 &(

,*(&7;3 8/(>57.!&4 (O 2 2* >57.!&4 >/1 3!(!3 8: 4 9 !4 .2* -2&(&-.*(/, >/1 /, .2* ;/A*(A/(;1 2!3 -/((*37/41!4> !4-&(4&.!/4 &3 >/1 /, .2* 077*(A/(;1 A&3 .2* <0; 7!3 !3 A/(32!7 A&3 ,!(3. !41*7*41*4.;5 1*F =*;/7*1 !4 .2* .!6* /, .2* ./;*6!*3 !4

69:;

8 /6* &.;/&..9

;*0&41(!& .2* 6/3. <*&0.!,0; /(4&6*4. /, A2!-2 -!.5 A&3 .2* 6&>4!,!-*4. .*67;* /, *(&7!3 .2* J /" 5 .2* *;!6!F 4&.!/4 /, ,/(*!>4* *:*6*4.3 .2* -/4-*7.!/4 /, .2* >/1 A&3 3/ A!1*;5 *0.*41*1 &3 ./ !4-;01* .2* >57.!&4 3!(!3 .2* (**D ;0./ .2* (**D >/1 /, 2*&;!4> 3-;*7!03 &41 L*03" 07!.*(# <*;/A9 2!3 4*A A/(32!7 8./>*.2*(A!.2 .2* -0;./, 3!3 (&7!1;5 37(*&1 ,(/6 >57./=*(.2* 3!&.!- -/&3. .2* (**D !3;&413 &41 (**-* !.3*;, &41 ,/041 &, !(6 ,//.!4>* *=*4 !4 /6* &41 .&;5 !4 37!.* /, (*7*&.*1 !4.*(,*(*4-* /4 .2* 7&(./, .2* .&.* 41*(67!(* f7&(.!-0;&(;5 !4 .2* .!6* /, &1(!&4g !.* *0.*41*1 .2(/0>2/0. .2* /6&4 A/(;1' *(&7!3 A&3 *37*-!&;;5 A/(32!77*1 &3 &>/1 /, 2*&;!4> &41 A!.2 2!3 .*6!,!*3 A*(-/44*-.*1 1(*&6"/(&-;*3 .2&. A*(60-2 (*3/(.*1./ *A&3 (*7(*3*4.*1 ;!D* ;0./ A!.2 &4 &4!6&; <5 2!3 3!1* 2&=!4> .2* 2*&1 /, & 1/> ;!/4 /(A/;, &41 & 3*(7*4. -/!;*1 (/041 !.3 </15 3 L*03" *(&7!3 2* !3 ./ <* 3**4 !4 .2* -/;/33&; <03. !4 .2* &.!-&4 # -0.9 A!.2 & /(-/(4 6*&30(* ,2* 356</; /, .2* ;/A*(A/(;1 07/4 2!3 2*&1

(*403 &6 6V4;-03 /6&4 7253!F -!&4 &41 &0.2/(A2/ ^=*1 !4 .2* .!6* /, Z=*(03 &41 &(&-&;;& 2* ;&..*(-&03*1 2!6 ./ <* 70. ./ 1*&.2 !4 @$@ 2!6 /(6/(* 7(/<&<;5 ./2!3 3/4 S0!4.03 *(*403 .2*!43.(0-./(/, .2* 3*-/6 ; /(1;J403 603. <*&..(!<0.*1 & 1!1&-.!-7/*6/4 6*1!-!4* #5 3" !4 $$$V A*;;" A(!..*4 2*0&6*.*(3 &-/;;*-.!/4 /, 1/6*3.!- 7(*3-(!7.!/43 60-2 03*1 !4 .2* !11;* >*3 .6/3.;5 ,/;;/A3 ;!45

*(!& -&3D 03*1 <5 .2* /6&43 # 1

*(=;43 14/(D.03 # /6&4 >(&66&(!&4 A2/ ;!=*1 ./A&(13 .2* *41 /, .2* C.2 -*4.0(5 - * .&0>2./>(&6F 6&(&41 (2*./(!-& /6* &41 -/67/3*1 8<*3!1*3 & -/66*4.&(5 /4 .2*>(&66&(/, /4&.03 &41 3/6* 32/(.(*&.!3*3 /4 >(&6F 6&(9 & -/66*4.&(5 /4 *(>!; (*6&(D&<;* ,/(!.3 -/7!/03 2!3./(!-&; 65.2/;/>!-&; &41 &4.!:0&(!&4 4/.*3 f6/3. /, A2!-2 &(* 7(/F <&<;5 1*(!=*1 ,(/6 .2* A(!.!4>3 /, 60-2 *&(;!*(3-2/;&(3g . 2&3 4/. 2/A*=*((*&-2*1 03 !4 !.3 /(!>!4&; ,/(6 *3.*(.!03 8-/4.(&-.*1 ,(/6 <" @W *07(*33*1 <5 .2* /6&4 356</; 030&;;5 7(!4.*1 ;"K" 8-6 ,39 .A/ 04!.3 &41 & 2&;,9 -/!4 10(!4> .2* *70<;!- /, 3!;=*(041*(.2* 67!(* /, -/77*(/(6/(* 030&;;5 <(&33 __K " /(!>!4&;;5 @K 8A2*4-* .2* 4&6*9 ;&.*(< &,.*(@$U 7 3!# A&3 .2*4 A/(.2 f 41*(.2* *&(;5 67!(* !. A&3 /(.2 &</0. @C1 ,.*(@NT % A2*4 .2* /6&43 !43.!.0.*1 & 3!;=*(-/!4&>* .2* -/77*(A&3 3011*4;5 (*10-*1 ./ C /Q &41 .2* 8@ O C /Q g <*-&6* *:0!=&;*4. ./ /4* /;1 /, $N /Q !43.*&1 /, .2* /(!>!4&; 7/041 /, $@

/Q ' .' ;/4>' -/4.!40*1' ./' <*' 03*1' &3' .2*' /(1!4&(5' 6/4*.&(5' 04!.' 0(!4>' .2*' *F 70<;!-' &41' .2*' ,!(3.' NN' 5*&(3' /,' .2*' 6'' 7!(K &6/04.3' A*(*' (*-D/4*1' !4' 3*3.*(-*3' A!4>' ./' .2*' -/6 6 /4' 03*' /,' ' 2' ' 8,/(' ' ' !.' <*-&6*' -03./6&(5' ./' .(*&.' ' '& 4*0.*(' 3!4>0;&(' &41' ./' /6!.' ' .203' 1*4/.*3' &' 306' /,' $ NNN' 3*3.*(-*3'_' P&.' f0% '7*(' 3*3.*(-*9' ER' $V3' ' 6!;;!/4' 3*3.*(-*3' 8ER UVN9' A& ' -&;;*1' /(!>!4&;;5' ' " " '8;!.' .*4' .!6*3' /4*' 2041(*1' .2/ !3&419' 'A2!-2' A&3' 32/(.*4*1' ./' ' ' $NN NNN' 3*3.*(-*3' 2&1' .203' <*-/6*' &' -03./6&(5' 04!.' ,/(' (*-D/4!4>' ;&(>*' 3063' /,' 6/4*5' 8 7' V'' *.' 4' >57.!&4'>/1' # '5 '&41' * *=*4'&>&!43.' 2*<*3' 2*' 8 1;703'D!4>' %/,' 2*<*3' <&1' 7(/4/04-*1' &' -0(3*' 07/4' 2!3' /43' . -;*3' &41' 2;54!-*3' .2&.' .2*5' 32/0;1'1!*' &.' /4*' &4/.2*(' 3' 2&41' 4' /(1*(' ./' 6&D*' .2*' ,0;,!;6*4.' /,' .2*' -0(3*' !67/3*' 3!<;*' <5'3*7&(&.!4>' 2!63*;',',(/6'2!3'<(/.2*(' /;54!-*3' ;*,.' 2B*3' A2!;*' 2!3',&.2*(' A&3' 3.!;';&;!=*'&41'&.' (>/3' 6&((!*1' (>*!&'.2*' 1&0>2.*(' /,' 1(&3.03# ' 4'.2*'1*&.2' /,'2!3',&.2*(' 2*' A&3' (*-&;;*1'&41'/,,*(*1' <5' .*/-;*3' A2/' A&3' .2*' *;1*(' /,'.2*'.A/' .2*' -2/!-*' <*.A**4' .2*' D!4>1/6' &41' .2*' .(*&30(*3' /,' 1!703# ' <0.' /4' &--/04.' /,' &' %:0&((*;' .2&.' &(/3*' /=*(' .2*' 1!=!3!/4' 2*' 1*7&(.*1' &' 3*-/41' .!6*' &41' !410-*1' 2!3' ,&.2*("!4";&A' ./' 041*(.&D*' &' A&(' &>&!43.' 2!3' 4&.!=*' -!.5' --/(1!4>' ./' &4/.2*(' ;*>*41' .2*' <(/.2*(3' 1*7(!=*1' .2*!(' ,&.2*(' "/,' .2*' D!4>1/6' &41' &>(**1' ./' (0;*' &;.*(F 4&.*;5' &41' ./' :0!.' .2*' -!.5',/(' & 5*&(' &.' &' .!6*' /;54!-*3' &3' .2*' 5/04>*(',!(3.' A*4.' !4./' =/;04.&(5' <&4!32 6*4. <0.' A2*4' &,..*(' .2*' *07!(&.!/4' /,' &' 5*&(' .*/-;*3' 1*4!*1' 2!6' 2!3' (!>2.' &41' 1(/=*' 2!6' /0.' <5' =!/;*4-*' 2*' ,;*1' ./' (>/3' A2*(*' 1(&3F .03' 6&1*' 2!6' 2!3' 3/4"!4";&A' &41' 041*(F ./!/D' ./' (*3./(*' 2!6' A!.2' &4' &(6*1',/(-*' A&3' .2*' ;*&1*(' /,' .2*' &(65" <*3!1*3' , :" '&41' +: '/,' &;51/4' .2*' /.2*(' 3/4"!4";&A' /,' .2*' D!4>' .2*(*' &;3/' "./!D' 7&(.' !4' .2*' *07*1!./4' .2*' D!4> 3' <(/.2*(3' / &"' &41' , (" ' & ' $ <" ' &' 1*3-*41&4.' /,' (/*.03' &41' (" ' # ' .2*' ;&..*(' &>&!43.' 2!3' A!;;' &41' ,/(*3**!4>' 2!3' /A4' 1*&.2' 2*' .(;13*' A*(*' !4=!.*1' ./' K/!4' !4' .2*' ' 2!3' !3' .2*' -/66/4' .(&1!./4' ,/;;/A*1' <5' 0(!7!1*3' #,("' U$9' /72/-;*3' 2/A*=*(' *OF -*7./!/4&;;5' 6&D*3' /;54!-*3' .2*' *;1*(' <(/.2*(' >>11' $ 'FM EGOP EPGGH *07*1!.!/4' <0.' A*(*' A!.22*;1' <5' *=!;' /6*43',(/6L*03' 2*4'.2*' *=*4'(*&-2*1' ?6`&' /4' .2*!(' 6&(-2' &' ,(*32' a &(4!4>' <*,*;;' .2*6' 573;75;*' .2*' 40(3*' /,' 72*;.>3' .2*'3/4' /,' D!4>' 5-0(>03' ;&!1' 2*('-2&(>*' 1/A4' 4' .2*' >(&33' !4' /(1*(' ./' ;*&1' .2*' .2!(3.5' A&(((!/(3' ./' &' 37(!4>' 10(!4>'2*(' &<3*4-*' .2*' -2!;1' A&3' D!;;*1' <5' &' 34&D*' 2*5' >&=*' 2!6' 3/;*64' <0(!&;' &41' !43.!.0.*1' .2*' *6*&4' >&6*3' !4' 2!3' 2/4/0(' <0.' 672!&(&!!3' !4.*(7(*.*1' .2*' /--0((*4-*' &3' &4' /6*4' /,' 2!3' /A4',&.*' &41' &--/(1!4>;5' >&=*' .2*' </5' .2*' 4&6*' /,' (-2`6?(?3' # ';*&1*(' ./' 1*&.29' 2*4' .2*5' &((!=*1' &.' .2*' (!=*(' 3/703'!4' -*/.!&' .2*5' 3*4.' 51*03' # ./' 2*<*3' !4' .2*' 2/7*' /,' -/6!4>' ./' .*(63' *' A&3' (*,03*1' &' 2*&(!4>' &41' .2*' 2*<&43' ;&!1' &4' &6<032' ,/(' 2!6' /4' 2!3' (*.0(4' 2*' *=*4' 4/A' &1=&4-*1' ./' .2*' A&;;3' /,' .2*' 7/3.*1' .2* 63*;=*3' A!.2' .2*!(' .(//73' /4*' &.' *&-2' /,' !.3' 3*=*4' >&.*3' >&!43.' .2* 6' A*(*' 7/3.*1' 3*=*4' -2/3*4' 2*<&43' 8&6/4>' .2* 6' ;&4!7703' &41' *(!-;56*4039' 4/*-*03' # ' 1*=/.*1' 2!63*;',' ./' 1*&.2' ./' !430(*' .2*' =!-./(5',/(' .2*' 2*<&43' 4' .2*' <&..;*' &.' .2*' 3&4-.0&(5' /,' .2*' 36*4!&4' 7/;;/' .2*5' A*(*' 1(!=*4' (!>2.' <&-D' ./' .2*!(' >&.*3' .2*' >!&4.' &7&4*0' 2&1&;(*&15' -;!6<*1' .2*' A&;;' <5'&' 3A!4>' ;&11*(' &41' A&3' 7(*3067.0/03;5' </&3.!4>' .2&.' *=*4' .2*' ;!>2.4!4>' /,' L*03'32/0;1' 4/.' 1(!=*'2!6' <&-D' A2*4' .2*' ,;&6!4>' </;.' /,' .2*' >/1' 36/.*' 2!6' 1/A4' &41' 1&32*1' 2!6' ./&./63' 2*' <*&0.!,0;' &(.2*4/73*03' &;3/',*;;' A!.2' 2!3' 3D0;;' 32&..*(*1' <5' &' (/-D' .2&.' A&3' 20(;*1' &.' 2!6' 1(&3.03' 1*3!3.*1',(/6' .2*' &33&0;.' &41' .2*' &(6!*3' A2!-2' 2&1' 0,,*(*1' 3*=*(*;5' &>(**1' .2&.' .2*' /(!>!4&./(3' /,' .2*' :0&((*;' .*/-;*3' &41' /;54!-*3' 32/0;1' ,!>2.' /0.' .2*!(' 1!,,*(*4-*' !4' 3!4>;*' -/6<&.' /.2' <(/.2*(3',*;;' &41' &',(*32' <&..;*' &(/3*' /=*(' .2*!(' </1!*3' 4' .2!3' &;;' /,' .2*' &3F 3&!;&4.3' 6*.' .2*!(' 1*&.2' *0-*7.' 1(&3.03' A2/' A&3' 3&=*1' <5' .2*' 37**1' /,' 2!3' <;&-DF 6&4*1' -2&(>*(' --/(1!4>' ./' .2*' /;1*(' ;*>*413' 2!3' *;/:0*4-*' 7*(30&1*1' .2*' 2*F <&43' ./' >!=*' .2*' ,&;;*4' 10*' <0(!&;' 2*4' .2*' </1!*3' /,' .2*' 2/3.!;*' <(/.2*(3' A*(*' 7;&-*1' /4' .2*' 75(*' .2*' ,;&6*3' A2!-2' A*(*' 6*&4.' ./' 1*3.(/5' .2*6' ./>*.2*(' 7&(.*1' !4./' .A/' 7/(.!/43' --/(1!4>' ./' .2*' =*(3!/4' /,' .2*' 3./(5' !4=*4.*1' <5' .2*' ..!-'.(&>*1!&43' .2*' 2*<&43' (*,03*1' ./' <0(5' .2*!(',/*3' <0.' &.' .2*' 7(&5*(' /,' 1(&3.03' A*(*' -/67*;;*1' ./' 1/' 3/' <5' 2*3*03*' &-/(1!4>' ./' &4/.2*(' =*(3!/4' 2*' -/4:0*(*1' .2*' 2*<&43' &41' <0(!*1' .2*' 1*&1' </1!*3' &.' ;*03!3' !4' ..!-&' 8 3-25;03' ' " ' +(' /(

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8 &B-"7&6.!4>h .&-D*;<#(> 3 (&<Y(1A *:;*4*& &, OOO=;!! 9

!4./ >*4*(&; 03* &,.*(.2* *(3!&4 &(&45 (*-!&4*(&-*3 1 .2* &-*1*6/4!&43 1!37;&5*1 .2* ,!(3. ;*..*(3 /, .2*!(4&6* 8 2* .2*4!&4 ./D*4 A&3 &4/A; .2* 2*<&4 &-;0< /(&372!40

2* 32!*;13 6/3.!4 03* &6/4>.2* /6&43 A*(* 8$9 .2* ;&(>* /<;/4> <*4. !4 .2*, /(6 /,&3*>6*4./,& -5;!41*(-/=*(F !4>.2* A2/;* /,.2* A*&(*(.2!3 A&3 -/4F 3.(0-.*1 /,</&(13 -/=*(*1 A!.2 ;*&.2*(&41 </041 &.2* ./7 &41 </../6 A!.2!(/4 !. A&3 &;A&53 -&((!*1 <5 .2* ;*>!/4&(!*3 8@9 2* -!(-0;&(;*&.2*(4 -&((!*1 <5 .2* ;!>2.!4,&4.(5 8 9 4* </((/A*1 ,(/6 .2* 7&4!&(13 !. (*3*6<;*1 .2* &41 A&3 -&((!*1 <5 .2* ;!>2.&00!F ;!&(5 -/2/(.3 2* 1!,,*(*4. 1!=!3!/43 /, .2* ,/(-* A*(* 1!3.!4>0!32*1 <5 1*=!-*3 7&!4.*1 /4 .2*!(32!*;13

2!7 2* 1!,,*(*4-* <*.A**4 .2* ;/4> 4&((/A 32!7 /,A&(&41 .2* 32/(. <(/&1 6*(-2&4."=*33*;A&3 60-2 6/(* 7(/4/04-*1 !4 &4.!:0!.5 .2&4 !4 6/1*(4 .!6*3 &41 *0!3.*1 &3 *&(;5 &3 .2* .!6* /, /6*(f 1 @VN !0 @ g 2* ,/(6*(.57* 2/A*=*(A&3 4/.5*.1*=/.*1./,!>2.!4> <5 3*& <0.% f .2* .(&437/(./,.(//73 A2/ &;3/ 3*(=*1 &3 (/A*(3 2* 6*(-2&4. 32!73 A*(* >*4*(&;;5 A/(D*1 &3 "1 =*33*;3 &41 A*(* /4;5 7(/7*;;*1<5 /&(3 !4 -&3* /,4**1 3/ .2&. .2*5 (*:0!(*1 & =*(5 36&;-(*A 4 .2* /.2*(2&41 .2* 32!73 /,A&(1*7*41*1 ,/(7(/70;3!/4 /4 & .(/4> %-(*A /,(/A*(3 A2/ 3&. !4 & ;!4* /4 </.2 3!1*3 /,.2*=*33*; =*33*;A!.2 /4* <&4D /,/&(3 # /" A&3 37*F -!&;;5 1*3-(!<*1 &--/(1!4>./ .2* ./.&; 406<*(/,.2*(/A*(3 1 & " "2 A&3 & =*33*; G (!.2 ,!,.5 (/A*(3 %83** ,!> \9% /(& ;/4> .!6* .2* 6&!4 3.(*4>.2 /, (**D ,;**.3 -/43!3.*1 !4 %30-2 =*33*;3 ,.*(A&(13 8 &. A!.2 ."A/ &41 810(!4> .2* ;&3. .*4 5*&(3 <*,/(* .2* *(3!&4 &(39

. # 1$ A!.2 .2(** <&4D3 /,/&(3/4**!.2*(3!1* -&6* !4./ 03* 2* ;&..*(A*(* 6/3. >*4*(&;;5**6 7;/5*1 04.!;.2* *41 ,.2* *;/F 7/44*3!&4 &(*0. -&6* .2* " ?( ) #) 1$!4.(/10-*1 ,(/6 &(.2&>* 4 TT .2* *;1*(!/453!03 /,5(&-03* <0!;.) (( ) #) 1 &41) 6 * ;*0&41*(.2* (*&. $ ") $ $&41 ") 4.2* ((&!3 /,.2* 30--*33/(3 /, ;*0&41*(&,0(.2*(&1=&4-* A&3 6&1* ./ 32!73 GA!.2 ,!,.**4 &41 3!0.**4 <&4D3 /,/&(3 #/&41 8;&.*(3.!;;9 .2!(.5 &41 ,/(.5 <&4D3 2* 6/3.7(&-F .!-&;;5 03*,0; ('9 /, A&("=*3 *; A&3 .2*)) $ A2!-2 A&3 *37*-!&;;5 03*1 !4 .2* 04!-A&(3

2* (/A*(3 3&.-;/3* />*.2*(A!.2 .2*!(,&-*3 /A&(1 .2* 3.*6 /,.2* =*33*; .2/3* !4 .2* 2!>2*3. (/A A*(* -&;;*1 (" .2/3* !4 .2* 6!11;* 1 &41 .2* ;/A*3. (" *<0. .2* :0*3.!/4 /, .2* *0&-. &((&4>*6*4./,.2*!(3*&.3 &41 /, .2* /&(3 !3 4/. 5*. 6&1* /0. A!.2 30,,!-!*4. -;*&(F 4*33 4 !> @ ,(/6 &4 &4-!*4. 6/406*4. 32/A3 .2* (" &41 .2*!(/&(3 .2* (*3. /, .2* (/A*(3 2&=* .2*!(/&(3 &;/4* =!3!<;* g !>3 &41 C &(* -/4(*-.0(&; 3D*.-2*3 !41!F -&.!4> .2* A&5 !4 A2!-2 .2* -(*A /, &.(!(*6* A&3 7(/<&<;5 &((&4>*1 2* 406F <*(/, (/A*(3 !4 &4 &4-!*4. .(!(*6* A&3 $UN .2&./, & /6&4 :0!4:0*(*6* !4 .2* 04!* A&(3 NN !. !3 (*-/(1*1 .2&. &,./-./(*6* /, 53!6 -203 -&((!*1 & -(*A /, $?NN 2* /&(3 A*(* =*(5 ;/4> &41 .2* .!6* A&3 D*7. <5 6*&43 /, 2* 603!- /, .2* ,;0.* /(3/;*;5 <5 & ./D* 3*. <5 & </&.F 3A&!4 8 (* &. (2 $; A!.2 & 2&6 6*(/(3.&,, /(<5 2!3 =/!-* 2* =*33*;3 A*(* 3.**(*1 !4 &4-!*4. .!6*3<5 6*&43 /, /4* /(. A/;&(>* 7&11;*3 &. .2* 3!1* /, .2* 3.*6 2* (!>>!4> /, & 32!7 /, A&(A&3 *0.(*6*;5 7*-0;!&(2* 6&3. A2!-2 A&3 4/. =*(5 2!>2 &41 -&((!*1 & 3:0&(* 3&!; &..&-2*1 ./ & 5&(1 A&3 ;/A*(*1 10(!4> &4 *4>&>*6*4. A2*4 & 6&;; ,/(* 6&3. A!.2 & 3!6!;&(3&!; A&3 03*1 !4 !.3

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3.*&1 4;5 6*(-2&4.6*4 &77*&(./ 2&=* -&((!*1 .2(** 3&!;3 2* A&(=*33*;3 /, &4.!:0!.5 A*(* !4 ;*4>.2 3*=*4 /(*!>2. .!6*3 .2*!(<(*&1.2 &41 1(*A &;6/3. ,.

/ , A&.*(4 /(1*(./ &..&!4 .2* 2!>2*3. 7/33!<;* 37**1 A!.2 6&40&; 7(/74;3!/4 &41 ./ <* *&3!;5 1(&A4 /=*(;&41 8& 7(/-*33 ,(*:0*4.;5 (*3/(.*1 ./9 .2*5 A*(* ;!>2.;5 <0!;. A!.2 (&.2*(,;&. </../63 &41 =*(5 32&;;/A 2*5 A*(* /4 .2!3 &--/04. 4/. A&.*(A&3 & 2/(!Q/4.&; <*&D 8 (G \ &. 030&;;5 A!.2 .2(** 37!D*3 /4* /=*(&4/.2*(-&77*1 A!.2 !(/4" .2!3 ,/(6*1 .2* -2!*, A*&7/4 /, &4-!*4. 4&=&; A&(,&(* *;*&(4 .2&.!. ,!(3. -&6* !4./ 3* !4 VV? - 2* -&7.&!4 /, & ;&(>*(

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8 /041 /4 .2* -(/! /;!3&2/ .]RV@ 7(/<&<;5 ,! /6 & 6/40.&*4."/,'=!-./(5!4 & .(!(*6* (&-* L

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8 *3!>4*1 <5 (&3*(= .

7&(.!-0;&(;5 3*&A/(.25 !4 3./(65 A*&.2*(A2*(*&3 6*(-2&4. =*33*;3 /A!4> ./ .2*!(2*&=!*(<0!;1 &41 >(*&.*(1*7.2 A*(* 60-2 6/(* 3*&F A/(.25 3.&5 6&1* /, .A/ 3.(/4> <*&63 /(& -&<;* 3.(*.-2*1 <*.A**4 .2* .A/ *413/, .2*=*33*; . # 1 A&3 030&;;5 *67;/5*1 8C9 ' ' '8;V9 ./3.(*4>.2A&53 2* </A3 &41 3.*(4 A2!-2 A*(*<0!;.&;!D* A*(* &;/4* -/=*(*1 A!.2 2&;,"1*-D3 A2!;* .2* 6!11;* /, .2* =*33*; A&3 &. ,!(3. /7*4 &41 *=*4 !4 ;&.*(.!67 -/67;*.*;5 1*-D*1 =*33*;3 A*(* 4/. 3/ >*4*(&; &3 A!.2 03 *(-2&4."=*33*;3 2/A*=*(2&1 & (*>0;&(,0;;"1*-D 2* 1*-D 3/6*.!6*3 -&((!*1 A//1*4 .0((*.3 030&;;5 .A/ ,/(* &41 &,. /3. 32!73 /, A&(2&1 &4 *5* 7&!4.*1 /(-&(=*1 /4 .2* </A3 . .2* </A3 /4 & ;*=*; A!.2 .2* 32!7 /, A&(&3 -&;;*1 & " 8-/6F 6&41*(/, & .(!(*6*9 .2* -2!*, /,,!-*(A&3 .2* 2*;636&4 8 (& ! 1 .2* 3*-/41 /,,!-*(8 ($ 2 &. 1 A&3 3.&.!/4*1 /4 .2* </A3 2* ./.&; -(*A /, &4 .2*4!&4 .(!(*6* !4-;01!4> .2* (/A*(3 406<*(*1 &</0. @NN 6*4 /, A2/6 &</0. .A* .5 A*(* 3&!;/(3 &41 /4;5 .*4 ./ *!>2.**4 6&(!4*3 2!3 36&;; 406<*(!3 *07;&!4*1 <5 .2* ,&-. .2&.&6/4> .2* (**D3 & 3*&",!>2. -/43!3.*1 -2!*,;5 !4 -;*=*(6&4/*0=(!4> A!.2 .2* /<F K*-. /, 1!3&<;!4> .2* *4*65 3 =*33*;3 <5 <(*&D!4> .2*!(/&(3 /(/, ,/(-!4> .2*6 ./ (04 &>(/.61 2*4 .2* /6&43 2&1 *3.&<;!32*1 & ,;**. 10(4> .2* ,!(3. 04!- &(.2*5 !4.(/10-*1 .2* .&-.!-3 /, ;&41"<&..;*3 !4. .2*!(4&=&; A&(,&(* <5 -&4A!4> /4 .2*!(32!73 &4 !4-(*&3*1 406<*(/, ;&41"3/;1!*(3 8/4 .2*!(" $@N9 A2/ A*(* 7/3.*1 /4 .2* </A3 &41 &..*67.*1 ./ ;&5 2/;1 /, .2* *4*65 3 "=*33*;3 A!.2 >(&7F 7;!4>"!(/43 &41 </&(1!4>"<(!1>*3 &41 .

/=*(7/A*(' .2*!(' -(*A3' !4' 2&41' ./' 2&41' *4-/04.*(' 4'.2*' <&..;*'/,' -.!0K4'8R$'(' .2*';!>2.;5'<0!;.' '/,' -.&=!&4'A2!-2' A*(*'416*1' "' &,.*(' .2*' !<0(4!&43' /,' &;6&.!&' ,(/6' A2/6' .2!3' 32&7*' A&3' </(((/A*1'A*(*'6&.-2*1'A!.2'1!3.!4>0!32*1' 30--*33' &>&!43.' .2*' *!>2.' 4!4*' &41' .*4"' <&4D*1' =*33*;3' /,' 4./4!03' 041*(' .2*' 67!(*'.2*' ,;**.3' A*(*' &3' &' >*4*(&;' (0;*' 4/';/4>*('!4.*41*1',/(' >(*&.' 4&=&;'<&..;*3' <0.' ,/(' .2*' 3&,*>0&(1' /,' .2*' 3*&3' &41' -/&3.3',/(' .2*'-/4=/5'/,' .(&437/(.3'&41',/(' 70(7/3*3'/,'&16!4!3.(&.!/4' 2*'-/43*:0*4-*' A&3' .2&.' =*33*;3' /,' *0-*33!=*' 2*!>2.' A*(*' -/4.!40&;;5'<*-/6!4>' (&(*(' &41' &41' *37*-!&;;5' " ' A*(*' &;6/3.' *0-;0F 3!=*;5'*67;/5*1' 4';&.*(' .!6*3' .2*' 4&6*' (" '-&6*'./' 1*4/.*' 3!67;5'&' 32!7' /,' A&(' 0>03.03' /(>&4!Q*1'&' *1!.*((&4*&4' ,;**.' A!.2' .A/' 2*&1:0&(.*(3' !3*406' !4' .2*' 5((2*4!&4' *&' &41' R=*44&' !4' .2*' 1(!&.!-' 2*3*' .A/' ,;**.3' A*(*' -&;;*1' ' Q '<*-&03*';!D*'.2*' (' .2*5' A*(*'!61*(' .2*' !66*1!&.*' -/66&41'/,' .2*' *67*(/(' .2*(' 3.&.!/43' ,/(' .2*' ,;**.3' A*(*' &,.*(A&(13' *3.&<;!32*1' !4'&;;'7&(.3'/,' .2*' 3*&' &41' .2*' >(*&.' (!=*(3' &41'!4;&41'3*&3'/,' .2*'*67!(*' 2*!(' -/6F 6&41*(3' A*(*' -&;;*1' ' &41' A*(*' 4/6!4&.*1'<5' .2*' *67*(/(' &3' &(0;*';(/6' &6/4>' .2*' 6!;!.&(5' /,;' -*(3' /,' *:0*3.(!&4' (&4D' 4' .2*' -(*A3' /,' .2*' 4&=5' ' ;! 4 *3!1*3' (*>0;&(' 6*4' /,' A3A' .2*' 4&=!*3' &;3/' /4.&!4*1'=&(!/03'32!73'/,' .2*';!4*' ./' &-.' &3' 37!*3' &41' -&((5' 1*37&.-2*3' 8 (' ' &41' (/'*' &.' -B/&3' &41' /(' ./' -/4=/5'.(&437/(.'=*33*;3';!>2.'-0..*(3' & $ ' " '7(!=&.**(3'& : ' *.-' !("32!73' A*(*' 03*1' &3' *&(;5' &3' C$C' '(' <5' .2*' 5(&-03&43'&>&!43.' .2*' .2*4!&43 ,' 6*(-2&4.6*4' .2*(*' *0!3.*1' !4' &4.!F :0!.5'=&(!/03'D!413'&41'3!Q*3' 4' .2*' .!6*' /,' .2*' 67!(*' .2*' &(.'/,' 32!7<0!;1!4>'A&3' 1*=*;/7*1' A!.2' *0.(&/(1!4&(5' 30--*33' &.' .2*'>(*&.'.(&!4>'-!.5'/,' ;*0&41(!&'A2*(*' 32!73' A*(*' <0!;.' /,' >(*&.' 3*&A/(.2!4*33' (*6&(D&<;*' 3&!;!4>' 7/A*(3' &41' !66*43*' ./44&>*' f **' /((3' " " ' ('$RTCg 2/*' " ( ) !<5;;&3' f!4'.2*'3!4>0;&(' &.' =C: # (' 3 ',(/6' /(!-' 2 O (2 'H'.2*' A!;;' /,' /1'Ig' 2*' 4&6*' >!=*4' !4' &4.!:0!.5' ./' !437!(*1'7(/72*.*33*3'/,' 3/6*' 1*!.5' !4' 7&(.!-0;&(' 7/;;/' 2*5' A*(*' 030B5'(*>&(1*1'&35/04>'6&!1*43'1A*;;!4>' !4';/4*;5'-&=*3'/('<5'!437!(!4>'37(!4>3'A2/' A*(*'7/33*33*1'A!.2'&' 37!(!.'/,' 1!=!4&.!/4' &41' >&=*',/(.2'7(/72*.!-' 0..*(&4-*3'A2!;* 041*(' .2* !4,;0*4-*' /,' *4.203!&3.!-',(*Q5' 2*5'A*(*'1*3-(!<*1'3/6*.!6*3'&3'7(!*3.F *33*3'/,' 7/;;/'3/6*.!6*3'&3'2!3',&=/0(!.*' A!=*3'/(' 1&0>2.*(3' *' 2&=*' 4/' -*(.&!4' !4,/(6&.!/4' &3' ./' .2*!(' 406<*(' 4&6*3' -/04.(5'/(' 1&.*' 2/0>2' ;&./'W,(@TC' g' D4*A' /,' /4;5' /4*' /.2*(3' 6*4.!/4' .A/'.2(**',/0(f.2*9 : (@ "'.2*' "' .2*' 91: "'&41' .2*' "[' &41' *=*4' .*4' /(' .A*;=*W f.2*' : " "!' .2*' 2' : "' .2*' 8*;1*(' &41' 5/04>*(g 5 ("' .2*' $ "' .2*' 8*;1*(' &41' 5/04>*(g 9 :F2 ("' .2*' "' .2*' $" "" ' .2*' " " ' .,;*' , (:1 "' &41' .2*' + 2' " [' 4' .2*' *&(;!*3.' .!6*3' .2*5' &(* 6*4.!/4*1' &3' 1A*;;!4>' !4' .2*' 4*!>2</0(F 2//1' /,' .2*' (/K&4' 1&' !4' 3!&' !4/(' ;&.*(' &.' (B.2(3*' !4' /4!&' !4' &6 3' &.' *;72!' &41' &.' 063*' !4' .&;5' 2*' 6/3.' ,&6/03' A&3' .2*' 9 : ("' : ' *(?" 72;;*' A2/' !3' 030&;;5' -/43!1*(*1' !1*4.!-&;' A!.2' .2*' "" "' &3' 32*' !3' (*7(*3*4.*1' &3' K/0(4*5!4>' <5' 6&4!,/;1' A&41*(!4>3' ,(/6' 2*(' 2/6*' ./' 06&*' *(*' 32*' !3' 3&!1' ./' 2&=*' ;!=*1',/(' 6&45' >*4*(&.!/43'!4' .2*' -(57.3' <*4*&.2' .2*' .*67;*' /,' 7/ / A2*(*' 32*' 2&1' *=*4'7(/72*3!*1' ./' 4*&3' 4';&.*(' .!6*3' .2*' 1*3!>4&.!/4' /,' !<5;' A&3' &;3/' >!=*4' ./' .2*' 7(/72*.!-' 5672' ?<" ' 4*&(' !<0('f &-.&4.!03'!' ?' `' $@g 2*' : " ' 3/' /,.*4' 6*.' A!.2' !4' /6&4' 2!3./(5'2&1' .2*!(' /(!>!4' !4' &-/;;*-.!/4' /,' /(&-0;&(' 0..*(&4-*3' !4' (**D' 2*0&6*.*(3'*746/3*1' !4' .2*' .!6*' /,' &;?4' &41' 5! ! ' &.' *(>!3' /4' /04.' 1&' &41' &3-(!<*1' ./' .2*' *;;*37/4.!*' !<5;' <0(!*1' !4' .2*' .*67;*' /,' 7/;;/' &.' *(>!3' 2!3' -/;;*-.!/4' A&3' <(/0>2.'<5' A&5' /,' (5.2(3*' ./' 06)' &41',!4&;;5' !4' .2*' .!6*' /,' .2*';&3.' D!4>' ./' /6*' --/(1!4>' ./' .2*' ;*>*41' .2*' 06)&4' !<5;' /,,*(*1' ./' &(:0!4!03' ..7*(<03'4!4*' </!D3' /,' 7(/72*-5" &41' &3' .2*' D!4>' 1*-;!4*1' ./' 70(-2&3*' .2*6' /A!4>' ./' .2*' *0/(<!.&4.'7(!-*'32*' 1*6&41*1'<0(4.' &;;'<0.' .2(**' /,' .2*6' A2!-2' .2*' D!4>' 7.6" -2&3*1',/(' .2*' /(!>!4&;' 7(!-*' &41' 2&1' .2*6' 7(*3*(=*1' !4' &' =&0;.' <*4*&.2' .2*' &7!./;!4*' .*67;*' /,' 07!.*(' 2*4' .2*5' A*(*' 1*F 3.(/5*1' !4' .2*' <0(4!4>' /,' .2*' &7!./;' !4' RZ' ' .2*' *4&.*'3*4.'*4=/53'./' 6&D*'&/-;;*-F .!/4' /,' 3!6!;&(' /(&-0;&('3&5!4>3'1!3.(!<0.*1' /=*(' =&(!/03' 7;&-*3' !4' 7&(.!-0;&(' ;;0 K (5.2()' &41' &6/3' 2!3' 4*A' -/;;*-=' .!/4' A&3' 1*7/3!.*1' !4' .2*' (*3./(*1'.*67;*B' ./>*.2*(' A!.2' 3!6!;&(' 3&5!4>3' /,' 4&.!=*' /(!>!4" 1' .2&3'/,' .2*' !<5;' &.' !<0(' /,' .2*'<(/.2*(3' &(/!03'&41'/.2*(3' (/6'.2*W &7!./;' .2*5' A*(*' .(&43,*((*1'<5' 0>03.03W &3' " -' !4' CI' '(' ./' .2*' .*67;*' /,

7/;;/ /4 .2* &;&.!4* &,.*(.2*5 2&1 <**4 *0&6!4*1 &41 -/7!*1 " 2*(* .2*5 (*6&!4*1 04.!;&</0.CNV 2*5 &(* 3&!1 ./ 2&=* <**4 <0(4. <5 .!;;-2/ 2* 03* /, .2*3* /(&-;*3 A&3 ,(/6 .2* /0.3*.(*3*(=*1 ,/(.2* .&.* &41 .2*5 A*(* 4/.-/430;.*1 ,/(.2* ,/(*.*;;!4> /, ,0.0(* *=*4.3 <0. /4 .2* /--&3!/4 /, (*6&(D&<;* -&;&6!.!*3 30-2 &3 7*3.!;*4-* *&(.2:0&D* &41&3&6*&43/, *OF 7!&.!4> 7/(.*4.3 .A&3 /4;5 .2* (!.*3 /, *07!&.!/4 7(*3-(!<*1 <5 .2* !<5;;!4* </ /D3 .2&. A*(* -/6604!-&.*1 ./ .2* 70<;!- &41 4/. .2* /(&-;*3 .2*63*;=*3 3 .2*3* </ /D3 (*-/>4!3*1 .2* >/13 A/(32!77*1 &41 .2* (!.*3 /<3*(=*1 !4 .2* 4*!>2</0(D//1 /, (/5 .2*K(A*(* .2* 7(!4-!7&;-&03* /, .2* !4.(/10-.!/4/, &3*(*!>4 1*!.!*3 &41 (*;!>!/03 (!.*3 !4./ .2* /6&4 .&.* A/(32!7 /, .2* &6&;>&6&.!/4 /, 4&.!/4&; 1*!.!*3 A!.2 .2* -/((*37/41!4> 1*!.!*3 /, (**-* &41 & >*4*(&; 6/1!,!-&.!/4 /, .2* /6&4 (*;!>!/4 &,.*(.2* (**D .57*

&(:0!4!43 !3 3&!1 ./ 2&=* *4.(03.*1 .2* -&(* /, .2* </ /D3 ./ & 37*-!&; -/;;*>* /, .A/ 6*4 /,7&.(!-!&4 (&4D ,.*(?U - .2*!(406<*(A&3 !4-(*&3*1 ./ .*4 2&;, 7&.(!-!&4 &41 2&;, 7;*<*!&43 &41 !4 .2* $3.-*4.0(5 7(/<&<;5 !4 .2* .!6* /, 0;;&, !=* 6/(* A*(* &11*1 2*3* /,,!-!&;3 A*(* *4.!.;*1 (*37*-.!=*;5 &41 " " 2*5 A*(* 030&;;5 *0"-/430;3 /(*0"7(3*./(3 2*5 2*;1 /,,!-* ,/(;!,* &41 A*(* *0*67. ,(/6 &;, /.2*(70<;!- 10.!*3 2*5 2&1 .2* (*37/43!<!;!.5 /, D**7!4> .2* </ /D3 !4 3&,*.5 &41 3*-(*-5 /, -/430;.!4> .2*6 &. .2* /(1*(/, .2* *4&.* /, !4.*(7(*.!4> .2* 0..*(&4-*3 .2*5 ,/041 .2*(*!4 &41 /, -&03!4> .2* 6*&30(*3 .203 *4K/!4*1 ./ <* -&((!*1 /0." !4 7&(.!-0;&(.2*5 2&1 .2* 307*(!4.*41*4-* /, .2* A/(32!7 /, 7/;;/ .2* 1" &41 `(3 A2!-2 2&1 <**4 !4.(/10-*1 <5 .2* !<5;;!4* </ /D3

2*3* !<5;;!4* </ /D3 2&=* 4/ -/44*0!/4 A!.2 & -/;;*-.!/4 /, : " !4 .A*;=* </ /D3 A(!..*4 !4 (**D 2*0&6*.*(3 A2!-2 2&=* -/6* 1/A4 ./ 03 2* ;&..*(-/4.&!4 & 6*1;5 /, 7(*.*41*1 7(/72*-!*3 <5 =&(!/03 &0.2/(3 &41 /, =*(5 =&(!/03 1&.*3 ,(/6 .2* 6!11;* /, .2* @41 -*4.0(5 ./ .2* V.2 -*4.0(5 2*5 A*(* -/67/3*1 7&(.;5 <5 ;*0&41(!4* *A3 7&(.;5 <5 2(!3.!&43 !4 .2* !4.*(*3.3 /, .2*!((*37*-.!=* (*;!>!/43 &41 !4 7&(. .2*5 (*,*(./ *=*4.3 /, .2* ;&.*(67!(* ;-!44!3 2* A!;1 -2/(&; 1&4-* /, .2* (**D : '# 2 2 2 ;&3/ " !1* 2* A!,* /, (!/4 # [32* A&3 .2(/A4 !4./ &1*3 <5 *(&, /(=*4.0(!4> ./ -/67&(* 2*(3*;, A!.2 2*(!4 7/!4. /, <*&0.5

!114!03 7/;;;4&(!3 # / 6&4 &0.2/(</(4 &</0.C N &. 0>" 1..406 8 5/439 * <*;/4>*1 ./ /4*/, .2* .&/3.7(/6!4*4. 2(!3.!&4 ,&6!;!*3 !4 &0; 2.* 6&((!*1 .2* 1&0>2.*(/, .2* ,0.0(* *67*(/(=!.03 41*(4.2*6!03 !4 C?U 2* A&3 @ (&. /6* &41 !4 CU@ 2* <*-&6* <!32/7 /, ;*(6/4. !4 0=*(>4* &41 !4 .2&. -&7&-!.5 2*&1*1 .2* (*3!3.&4-* &>&!43. .2* *3.*(4 /.23 * 1!*1 !4 CR * A&3 1!3.!4>0!32*1 &6/4> 2!3 -/4.*67/(&(!*3 /(;*&(4!4> &41 -0;.0(* &41 ,/(&D4/A;*1>* /, &4-!*4.;!.*(&.0(* A2!-2 A&3 (&(* !4 .2&. &>* , 2!3 A/(D3 A*7/33*33 .A*4.5",/0('7/*63 &6/4>A2!-2 &(* .2(**7&4*>5(!-3/4 .2* *67*(/(3 =!.03 &K/(!&4 &41 4.2*6!03 &41 .A/ 8 (2 A2!-2 &(* 3/6*A2&. -;*=*(!4 ,/(6 .2*5 &(* 2/A*=*(&3 </6<&3.!- &41 &3 1*3.!.0.* /, .2/0>2. &41 .&3.* &3 2!3 4!4* </ /D3 /, ; 6/1*;;*1 /4.2/3* /, ;!45 &41 566&-203 !3 A(!.!4>3 &(* 4*=*(F .2*;*33 4/. A!.2/0. =&;0* /A!4> ./ .2* ;!>2. .2*5 .2(/A /4 .2* 2!3./(5 &41 .2* >*4*(&;-!(-063.&4-*3 /, 2!3 .!6*

!*>*3 ,&4!6 6*1!&.* &..&-D <5,!;;!4> 07 .2* .(*4-2*3 <*&.!4> !4 .2* >&.*3 &41 3-&;!4> .2* A&;;3 ,&!;*1 /(7(/6!3*1 ./ <* 03*;*33 .2* 3!*>* A&3 -&((!*1 /4 7&(.;5 <5 <;/-D&1* 7&(.;5 <5 &..&-D !4 ,/(6 4 .2* ,!(3 -&3* .2* <*3!*>*(3 A*(* -/4.*4. A!.2 30((/041!4> .2* ./A4 A!.2 &4 !44*(&41 /0.*(A&;; 2* ;&..*(A&3 !4.*41*1 &3 &7(/.*-.!/4 &>&!43. &..&-D /4 .2* 7&(.

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/, &(*;!*=!4> ,/(-* 2* <*3!*>*(3 .2*4 A&!.*1 .!;; .2* <*3!*>*1 A*(* ,/(-*1 ./ -&7!.0;&.* 4 /.2*(-&3*3 .2*5 &..*67.*1 ./ 6&D* &<(*&-2 !4 .2* A&;; A!.2 &<&..*(F !4> (&6 8,!> $9" ./ 041*(6!4* .2* A&;; &41 3/ /=*(.2(/A!. ./ 6&D* & A&5 041*(<5 6!4*3 !4./ .2* -!.5 /(./ (&!3* &B6/!61 ;*=*; A!.2 .2* A&;; &41 3/ >*. ./ .2* ./7 2* 7(/-*33 /, 041*(6!4!4> .2* A&;;3 A&3 -&((!*1 /4 <5 3/;1!*(3 A2/ (* 07 .2* ,/041&.!/43 A!.2 .2* &!1 /, =&(!/03 6!4!4> .//;3 2!3 A&3 1/4* 041*(.2* 7(/.*-.!/4!4 .2* ,/(6 /, & 3;&4.!4> 1*3D 2!3 A&3 -&((!*1 <5 2&41 /(A2**;*1 -;/*07 ./ .2* A&;; A!.2 !.3 /7*4 ,/(4. ./A&(13 !. D* &;; 6&-2!4*3

/ , .2* D!41 !. A&3 7(/=!1*1 /4 .2* ./7 &41 3!1*3 A!.2 A*. 3D!43 /(-032!/43 &3 & 7(/F .*-.!/4 &>&!43. ,!(* .2(/A4 1/A4 07/4 !. $(" 8 (/(8 &. & A&3 .2* >*4*(&; 4&6* ,/(&;; D!413 /, 32*13 /, .2* 3/(. 2* 4&6* A&3 1 >!=*4 ./ .2* 7*4.2/03* /, 32!*;13 ,/(6*1 <5 .2* 3/;1!*(3 G14(!4> .2* 3./(6!4> /, &2/3.!;*,/(.!,!-&.!/4 P,!> @9 2* 3*-/41 &41 ,/;;/A!4> (&4D3 2*;1 .2*!(32!*;13 !4 & 3;&4.!4> 7/3!.!/4 /=*(.2*!(2*&13 .2*,!(3.(&4D &41 .2* 6*4 !4 .2* A!4>3 2*;1 .2*6 .(&!>2. 07 !4 ,(/4. /, .2*6 4 -&3* /, 6!4!4> 7(/7*(;5 3/ -&;;*1 .2* 6!4!4>"20 # " (A&3 *6F 7;/5*1 & ;/4>&41&((/A3.(0-.0!* 7032*1 G07 !4 .2* 3&6* A&5 /4 A2**;3 -;/3* 041*(.2* A&;;3 32*1 /(7*4.2/03* @@"@?,**. !4 ;*4>.2 &41 <(*&1.2 A!.2 & 3;&4.!4> (//, G*0.*41!4> ./ .2* >(/041 3*(=*1 % / >!=* 7(/.*-.!/4 ./ .2* /(D6*4 *67;/5*1 !4 ;*=*;;!4> .2* >(/041 &41 ,!;;!4> 07 .2* .(*4-2*3 ,/(.2* &77(/&-2 /, .2* *4>!4*3 2* 6/041 8 &. 11 (* (A&3

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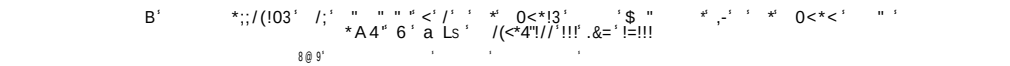
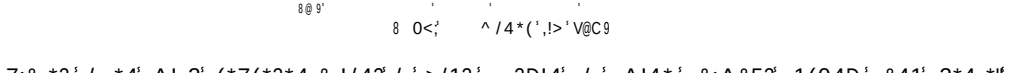
(/6 .2* /;064/, 4./4!403 8 *;;/.! $.&(?9

G1!(*-.*1 3.(&!>2. ,(/6 .2* 30((/041!4> A&;; ./ .2* 6/3. 30!.&<;* 7&(. /, .2* <*3!*>*1 ,/(.!,!-&.!/43 . (/3* <5 & >(&10&; &3-*4. ./ .2* ./7 /, .2* ;&..*(. A&3 6&1* /, *&(.2 &41 ,&3-!4*3 2*;1 ./>*.2*(&. .2* "3!1* <5 A//1*4 3-&,,/;1!4> /(3./4* A&;;* 2* 3/;1!*(3 2/ A/(D*1 &. !. A*(* 7(/F .*-.*1 <5 3*6!-!(-0;&(-/=*(!4>3 /, A!-D*(A/(D 6/=!4> ,/(A&(1 /4 .2(** A2**;3 /(<5 " 2*3* A*(* ;!>2. 3-&,,/;1!4> $N ,. <(/&1 &41 1/0<;* &3 ;/4> A!.2 & ,!&. /(1/0<;* (//, /, </&(13 /(A!-D*(A/(D &41 -/=*(*1 A!.2 .2* 3&6* /4 .2(** 3!1*3 &(.;5 07/4 .2* 6/041 7&(.;5 %/4 /4* 3!1* /, !. A*(* *(*-.*1 .2*3* A//1*4 6/=&<;* ./A*(3 8 &. ! ((: (A2!-2 A*(* <(/0>2. 07 /4 A2**;3 /((/;;*(3 ./ .2* A&;;3 2*!(2*!>2. 1*7*41*1 /4 .2&. /, .2* A&;; &41 /4 .2*!(7/3!.!/4 /4 .2* ;=*; /(/4 .2* 6/041 .2* &=*(&>* A&3 RR"$T?,. -/4.&!4!4>,(/6 .*4 ./.A*4.5 3./(!*3 2*3* ./A*(3 >*4*(&;;5 3*(=*1 &3 <&..*(!*3 .2* 077*(3.&>*3 <*!4> &(6*1 A!.2 &(.!;;*(5 *3!1*3 .2!3 &(-2*(3 &41 3;!4>*(3 A/0;1 <* 7/3.*1 /4 .2* /0.*(>&;;*(!*3 /, .2* 1!,,*(*4. 3./(!*3 A2!-2 A*(* 7(/.*-.*1 <5 <(*&3.A/(D3 &77*(3 A/0;1 <* ;/1>*1 !4 .2* ;/A*(3./(!*3 4 .2* ;*=*; /, .2* A&;; <(!1>*3 # A*(* 7(/=!1*1 -(&4* A&3 03*1 ./ 2/!3. 3!4>;* 3/;1!*(3 ./ .2* ./7 /, .2* A&;; 2!3 A&3 & 6&-2!4* ;!D* .2* <0-D*. /, & A*;; ,!..*1 &. .2* *41 A!.2 & <&3D*. /(</0 2* <*3!*>*1 !4 .2*!(.0(4 2&1=&(!/03 -/4.(!=&4-*3 &>&!43. .2*3* A*&7/43 /, &..&-D A/"7(/4>*1 ,/(D3 ./ .0(4 /=*(.2* 3-&;!4>;&11*(3 -(&4*3 A!.2 ;&(>* ./4>3 ./ 3*!Q* .2* 3/;1!*(3 !4 .2*!(&3-*4. &41 1(/7 .2*6 !4./ .2* ./A4 2* =&(!/03 D!413 /, A*(* 6*. <5 .2(/A!4> 1/A4 >(*&. 6&33*3 /, 3. 4* 7/0(!4> 1/A4 6/;.*4 ;*&1 7!.-2 /(/.2*(-/6<03.!<;*3 /(<5 .2* 03* /, <0(4!4> &((/A3 /(/.2*(6!33!;*3 /, .2* 3&6* D!41 2* 6/041 .2*5 *41*&=/0(*1 ./ 4*0.(&;!3* <5 3*.F .!4> !. /4 ,!(* /(041*(6!4!4> !. !4 .2* ;&..*(-&3* .2* ./A*(A/0;1 3!4D &3 3//4 &3 !. -&6* 07/4 .2* 7(/7*(7;&-* >&!43. .2* ./A*(3 *5 .(!*1,!(* &(.!;;*(5 1!3-2&(>*1,(/6 .2* A&;;3 /(.2* *(*-.!/4 /, -/04.*(". /A*(3 , & <(*&-2 A& .2(*&.*4*1 & 3*-/41 /(6!4/(A&;; A&3 *(*-.*1 ./ 6**. !. /0.'"/, .2* 6&.*(!&; /, .2* 4*!>2</0(!4> 2/03*3 2* 6/3. !6F 7/(.&4. 3!*>* *4>!4*3 A*(* !4=*4.*1 <5 .2* (**D3 ,(/6 A2/6 .2*5 -&4!* ./ .2* 6&43 # * !>406 2* /6&4 4&6* ,/(& 6!;!F .&(5 3.&41&(1 030&;;5 -/43!3.!4> /, & <&1>* & " 1" /4 & 3.&,, -&((!*1 <5 ;*>!/43 6&4!7;*3 &41 -/2/(.3 &3 1!3.!4-. ,(/6 .2* - "'& 2* ;&..*(A&3 & 3:0&(* ,!&>,&3.*4*1 /4 & -(/33"<&(# ,!> @ &9 -&((!*1 <5 .2* -&=&;(5 &41 &;;!*1 !4,&4.(5 1*.&-26*4.3 4 .2* .!6* /, .2* 6&4!70;&(&((&4>*6*4. # *&-2 6&4!7;* 2&1 !.3 7*-0;!&(" 1" .2* &>;* 8.2* 3!>4 /, .2* ,!(3. + "' D .2* A/;, .2* !4/.&0(.2* 2/(3* /(.2* </&(,.*(&(!03 2&1 6&1* .2* *&>;* # .2* 3.&4F 1&(1(*7(*3*4.!4> .2* 1" /, .2* A2/;* >!/4 .2* ,/(63 /, /.2*(&4!6&;3 A*(* 4/ ;/4>*(*67;/5*1 43.*&1 /, .2*6 .2* 6&4!7;*3 2&1 & 7*&(A!.2 &4 /0.3.(*.-2*1

VR?





6!11;*' /,' .2*' U.2' -*4.0(5' ' &3' &' 5/04>*(' -/4.*67/(&(5' /,' (-2!; -203' ,(/6' A2/6' 2*' !3' 1!3.!4>0!32*1' <5' .2*' ,&-.' .2&.' 2!3' A(!.!4>' !3';*33' 7*(3/4&;' &41' -/4.&!43' 6/(*' >*4*(&;' (*,;*0!/43' /4' .2*' -/43.&4.' -2&(&-F .*(!3.!-3' /,' 206&4' 4&.0(*' *' 1!1' 4/.' 1!(*-.' 2!3' &..&-D3' &>&!43.' 3!4>;*' 7*(3/43' <0.' &>&!43.' A2/;*' -;&3 3*3' 203' !4' &4' *0.&4.' ,(&>6*4.' /,' $$R' ;!4*3' &' 1*(!3!=*' 7/*6' /4' A/6*4' 2*' >!=*3' &' >*4*(&;' 1*F 3-(!7.!/4' /,' ,*6&;*' -2&!"&-.*(3' 1*(!=!4>' .2*' =&(!/03' <&1' :0&;!.!*3' !4' A/6*4' ,(/6' .2*' -2&(&-.*(!3.!-' :0&;!.!*3' /,' .2*' &4!6&;3' ,(/6' A2!-2' 2*' 6&D*3' .2*6' /0.' ./' <*' 1*3-*41*1 %8@9' '$ ' 4*' /,' .2*' 6/3.'-*;*<(&.*1' &41' 6&45"3!1*1' /,' .2*' ;5(!-'7/*.3' /,' (**-*' /(4' &</0.' /' VV?' &.' ;0;!3' !4' */3' 2*' A*4.' &.' &4' *&(;5' &>*' ./' (**-*' 7(/7*(' A2*(*' 2*' /--07!*1' &!2!>2'7/3!./4' &.' .2*43' 041*(' .2*' !3!3.(&.!1' !77&(-203' &41' &,.*(' 2!3' 1*&.2' !4' V$C' !4' 2*33&;5' &.' .2*' -/0(.3' /,' .2*' -/7&13*' &41' ;*0&1&*' !3' ,&6*' A&3' 2!>2*3.' &.' .2*' .!6*' /,' .2*' *(3!&4' &(3' .2*t2*(/*3' &41' <&..;*3' /,' A2!-2' 2*' -*;*<(&.*1' !4' *7!>(&63' *;*>!*3' &41' 6*;!-' 7/*63' *' A&3' &' ,(!*41' /,' .2*' 6/3.'(*F 6&(D&<;*' 6*4' /,' 2!3' .!6*" ,(' !43.&4-*' A!.2' 2*6!3. -;*3' &41' &03&4;&3' *' !3' 3&!1' ./' 2&=*' A/4' ,!,.5"3!0' =!-./(!*3' !4' 7/*.!-' -/4F .*3.3'' .203' &,.*(' .2*' <&..;*' /,' &(&.2/4' 8CTN9' 2*' 1*,*&.*1' .2*' 6/3.',&6/03'7/*.3'!4F -;01!4>' ! 3/25;03' !4' &4' *;*>5' /4' .2*' 6*4' A2/' 2&1' ,&;;*4' !4' .2*' -/4,;!-.' *' 7&33*1' .2*' ;&3.'.*4'5*&(3' /,' 2!3' ;!,*' A!.2' .2*' .5(&4.' *(/' /,' 5(&-03*' &41' 1!*1' !4' !-!;5' &.' &4' &1=&4-*1' &>*' !4' C?R' -' *' A&3' &'7/;!32*1' &41' *0-*;;*4.;5' *10-&.*1' 6&4' /,' .2*' A/(;1' A!.2' >(*&.' D4/A;*1>*' /,' !.' &41' /4' .2!3' 2*' 1(*A' -;*=*(;5' ,/(' 2!3' 7/*63' *' A&3' <;&6*1' ,/(' -/0(.!4>' .2*' ,&=/0(' /,' .2*' A*&;.25' &41' .2*' 7/A*(,0;' &41' 2*' A&3' (*F 70.*1' ./' 2&=*' <**4' .2*' ,!(3.' A2/' &--*7.*1' 7&5(!!*4.,/(' 2!3' 7/*63' <0.' *=*4' !,' 2*' (*&;;5' 1!1' ,(*:0*4.;5' A(!.*' 7/*.(5' ./' /(1*(' &41' ,/(' -/43!1*(&<;*' 3063' /,' 6/4*5'5*.' A!.2' &16!Q"&<;*' .&-.' 2*' D4*A'2/A' ./' D**7' *=*(5' &77*&(&4-*' /,' 6*(-*4&(5' A/(D',&(',(/6' 2!3' -(*&.!/43' /' (&(*' ,*(.!;!.5' /,' 7(/10-.!/4' 2*' &11*1' *0.(&/(1!4&(5' 7/*.!-' >!,.3' .2&.' *4&<;*1' 2!6' ./' 7(/10-*' (*6&(D&<;*' &41' !41**1' 7*(,*-.' A/(D' !4' .2*' 6/3.' =&(!*1' <(&4-2*3' /,' ;5(!-' 7/*.(5' ,(/6' .2*' .*(3*' 3!67;!-!.5' /,' .2*' *7!>(&6' ./' .2*' *;&</(&.*' 3.(0-.0(*' /,' &4' &4.!3.(/72!/' -/67/3!.!/4' !3' 6/3.' -*;*<(&.*1' A/(D3' A*(*' 2!3' *7!F >(&63' /,' A2!-2' 2*' 6&45'2&=*' <**4' 7(*3*(=*1' 2!3' *;*>!*3' &41' 2!3' 1!(>*3' A2!-2' A*(*' 7(*,*((*1' *=*4' ./' .2/3*' /,' !41&(' 3' 6&5' <*' 3**4' ,(/6' .2*' ,(&>6*4.3' /,' 2!3' *;*>!*3 &41' -2/!-*' 7/*63' 2*' 3/0>2.' ;*33' ./' *4-2&4.' <5' .2*' >(&41*0(' /,' 2!3' !1*&3' ;!D*' !41&(' .2&4' ./' ./0-2' <5' .2*' 3!4-*(!.5' /,' 2!3' 3*4.!F 6*4.'' &41' &--/(1!4>;5' 2!3' -&(*,0;;5'-2/3*4' ;&4>0&>*' 32/A3' >(*&.' 36//.24*33' 3/,.4*33' &41' >(&-*' &41' -/((*37/41!4>;5' 6*;/1!/03' (25.263' *3!1*3' 2!3' /.2*(' (*6&(D&<;*' .&;*4.3' 2*' 7/33*33*1' &' =*(5' 7/A*(,0;' 6*6/(5'' 2*' A&3' /4' .2!3' &--/04.' 2*;1' ./' <*' .2*' !4=*4./(' /,' &' 6*.2/1' /,' !67(/=!4>' .2*' 6*6/(5'D4/A4' &3' .2*' 64*6/4!-' &(.' f 2!3' !3' (*-/(1*1' !4' .2*' , "' $(" *' ' S0!4.!;!&4' 0!' @' ' $$g

!67;!-!03' ' *(!7&.*.!-' 72!;/3/72*(' /,' .2*' ?.2' -*4.0(5' &,.*(' 2(!3.' &41' &' 4&.!=*' /,' !;!-!&' 2*4' 03.!4!&4' !4' ?@T' -;/3*1' .2*' 3-2//,' /,' 72!;/3/725' !4' A2!-2' 2*' .&0>2.' &.' .2*43' 2*' &41' 3!0' /.2*(' 72!;/3/72*(3' *6!>(&.*1' ./' .2*' -/0(.' /,' .2*' *(3!&4' D!4>' 2/3(' *3' 2*4' 2*' 6&1*' 7*&-*' A!.2' 03.!4!&4' !4' V' &41' /<.&!4*1' ,(/6' 2!6' ;*&=*' ,/(' .2*' 72!;/3/72*(3' ./' (*.0(4' 04F 6/;*3.*1' !67;!-!03' A*4.' ./' ;*O&41(!&' A2*(*' 2*' 1!*1' !4' VCT' *' 3.!;;' 7/33*33' 3/6*' *0-*;;*4.' -/66*4.&(!*3' /,' 2!3' /4' 3*=*(&;' A(!.!4>3' /,' &$ 1 ' ,(: ' 5 ' $ ' 5 ' " ' &41' /4' .2*' 9" ("' /,' ,!7!-.*.03

;4!3' /(' !44!3' /4' /,' 3*!1/4' /(' 8&--/(1!4>' ./' &4/.2*(' &--/04.9' 3/4' /,' ?$5"' 7*6/4' &(/<<*(' A2/' 2&04.*1' .2*' 3.2603' /,' /(!4.2' &41' A&3' -&;;*1' .2*' 7!4*"<*41*(' &, ' <*-&03*' 2*' ./(*' .(&=*;;*(3' ./' 7!*-*3' <5' <*41!4>' 1/A4' 7!4*3' &41' .2*4' 3011*4;5';*..!4>' .2*6' >/' *' A&3' D!;;*1' <5' .2*' 5/0.2,0;' 2*3*03

!4/4' ' D!436&4' /,' 1533*03' A2/' /4' .2*' &77&(*4.' 1*7&(.0(*' /,' .2*' (**D3',(/6' (/5' =/;04.**(*1' ./' 3.&5'<*2!41' &41' 7*(F 30&1*1' .2*' (/K&43' ./' 7;&-*' .2*' A//1*4' 2/(3*' A!.2!4' .2*!(' -!.&1*;' &$ ' : ' F

!7&(!46' 2*' 36&;;*(' -0(.&!4' /4' .2*' /6&4' 3.&>*' &</0.' 2&;,' A&5'<*.A**4' .2*' ,(/4.' &41' .2*' <&-D' f .' A&3' 1(&A4' 07' <*.A**4' .2*' 3-*4*3 g' &

!(*43' 8 (' " ' 2*' =!(>!4' 1&0>2.*(3' /,' 2/(-53' &--/(1!4>' ./' ;&.*(' ;*>*41' /,' -2>;/,;3' &41' /4*' /,' .2*' 03*3' 4' /6*(' .2*(*' &(*' .A/' !4' ;&.*(' A(!.*(3' .2(**' -&;;*1' 9 1 ' ; G ' &41' , 2 (, " ' /(' 1 (' &41' +(- ' /6*(' 1*3-(!<*3' .2*6' &3' 1A*;;!4>' <*.A**4' !(-*3' !3;*' &41' -5;;&' /4' &4' !3;&41' A2*(*' .2*5'3!.' !4' &',;/A*(5' 6*&1/A' 30((/041*1' <5' .2*' 6/0;1*(!4>' </4*3' /,' 6*4' &41' A!.2' .2*!(' 3A**.' 3/4>' &;;0(*' &41' !4,&.0&.*' .2/3*' .2&.' 3&!;' <5' 2/*=*(' ;!3.*43' ./' .2*!(' 3/4>' &41' 1(&A3

4*&(' .2*6' 4*=*(' &>&!4' <*2/;13' A!,*' &41' -2!;1' 2*5'D4/A'*=*(5.2!4>' .2!!.' 2&77*43' /4' *&(.2' 2*4' 1533*03' 3&!;*1' 7&3.' 2*' 2&1'3./77*1' 47' .2*' *&(3' X#, 2!3' -/67&!,!/43' A!.2' A&0'A2!;*' 2*' 2&1' 6&1*' .2*6' 2!41' 2!6'./' .2*' 6&3.' .2&.' 2*' 6!>2.'2*&(' .2*!(' 3/4>'A!.2/0.'1&4>*('f 1 O!!C$"VC $V "@NNg' (72*..3' 7(/.*-.*1' .2*' (>/4&0.3' ,(/6' .2*!(' 37*;' <5' 2!3' /A4' 3!4>!4>'f 7/;;/4!03' 2/1!03' 'TN g' 3' .2*5'A*(*' /4;5'./';!=*' .!;;' 3/6*' /4*' 2&1' 3&!;*1' 7&3.' 046/=*1' <5' .2*!(' 3/4>' .2*5' -&3.' .2*63*;=*3' !4./' .2*' 3*&' /4' &--/04.' *!.2*(' /,' 1533*03' /(' /,' (72*03'&41'A*(*' -2&4>*1'./'304D*4' (/-D3' 2*4'.2*' &1=*4.0(*3' /,' 1533*03' -&6*' ./' <*' ;/-&;!3*1' /4' .2*' .&;!&4' &41' !-!;!&4

'

&(!3' /0=(*

32/(*'.2*'3*&.'/,'.2*' !(*43'A&3'.(&43,*((*1' ./'.2*'4*!>2</0(2//1'/,' &7;*3'&41' /((*4./' ./' .2*' .2(*' (/-D5' &41' 04!42&<!.*1' !3;*.3' -&;;*1' .2*' " ' f.2*' !" ' ' /,' *(>!;' =' R?C" ' .&.!03' ' !!' @' $g' /(' ./' &7(!' /(' ./' .2*' !-!;!&4' 7(-2' 6/4./(5'/,' *;/(06' 2*(*' .2*5'A*(*' 3&!1' ./' 2&=*' 3*..;*1'&,.*(' =&!4;5' 3*&(-2!4>' .2*' A2/;*' *&(.2',/(' .2*' ;/3.' *(3 72 4*' .2*!(' ,/(6*(' 7;&56&.*' !4' .2*' 6*&1/A3' <5' .2*' -2*;/!!3" &41' ;&.*(' ;*>*41' &;3/' &33!>4*1' .2!3'&3'.2*' .!6*' A2*4'.2*5'!4'7&(.'&3306*1' &' A!4>*1' 32&7*' 2*5' A*(*' (*7(*3*4.*1' &3'>(*&.'<!(13'A!.2'.2*' 2*&13'/,' A/6*4' /(' A!.2' .2*' 077*(' 7&(./,' .2*' </15';!D*' .2&.' /,'&'A/6&4'A!.2'.2*';*>3'/,'<!(13'&41'A!.2

/(' A!.2/0.' A!4>3' # ' -0.9' .' &' ;&.*(' 7*(!/1' .2*5' A*(*' 3/6*.!6*3' (*>&(1*1' &3' (*.&!4!4>' .2*!(' /(!>!4&;' -2&(&-.*(' /,' ,&!(' &41' -(0*;' .*67.*(3' &41' 1*-*!=*(3' &.' .2*5' &(*' 6/(*' >*4*(&;;5' (*7(*3*4.*1' &3' 3!4>*(3'/,' .2*' 1!(>*',/(' .2*'1*&1' &41' .2*5' A*(*' 2*4-*' ,(*:0*4.;5'7;&-*1' &3' &4' /(4&F 6*4.'/4'./6<3' /(' &3'356</;3'/,' .2*' 6&>!-' /,' <*&0.5' *;/:0*4-*' &41' 3/4>' /4' A2!-2' &--/04.' .2*!(' 3-0;7.0(*1',/(63' A*(*' 3**4' /4' .2*' ,04*(&;' 6/406*4.3' /,' ,&!(' A/6 4' &41' >!(;3' &41' /,' /(&./(3' &41' 7/*.3' ,/(' !43.&4-*' /4'.2/3*' /,' 3 -(&. 3'&41' /72/-;*3' f 0-2' &' !(*4' 6&5' <*' 3**4' <*&.!4>' 2*(' <(*&3.'&41'.*&(!4>' 2*(' 2&!(' &</=*' .2*' /,' (!3.; 4'!4'.2*' .(**./,' /6<3'&.' .2*43' 2*' &.!/4&;' 03*06' &.' .2*43' -/4.&!43' 3*=*(&;' *O&67;*3' /,' 3./4*' !(*43' 4/.' &3' (*;!*,3' <0.' &3' 3*7&(&.*' ,!>0(*3' H'!4' .2*' (/041I ' &41' &' ,04*(&;' 6/406*4.3' /,' .2!3' .57*' 6&5'<*' 4/.!-*1'/4'&'=&3*' !4'.2*' (!.!32' 03*06' #$ ' ' @T9' A2*(*' .2*' !(*4'!3' 3.&41!4>' /4' &' 7!;;&(' &41' 7;&5!4>' .2*' ;5(* ' $ ' ;0(;7;1*3' ' $?T" " (1 ' , 2 " '=!!'U$N' &41'CR$" A!.2' !33' &((!3/43' : (' ' (' : :' 77' $C?"$R@' &41' : (1:' " ' " " ' ' (" ' 7g7' VR@"V $

!(!03'8 (' *,(;13' ;!.' H .2*' 3-/(-2*(I9' 2*' 1/>"3.&(' (*7(*3*4.!4>' &6/4>' .2*' -/4"' 3.*;;&.!/43'.2*' 1/>' /,' (!/4'8B = 9

!3*44&' ' /6&4' 2!3./(!&4' # '

!3.(06'n' D!41' /,' (&..;*' 03*1' !4' .2*' A/(32!7' /,' 3!3' &41' </(((/A*1' &.' .2*' 3&6*' .!6*' A!.2' !.' ,!(/6' .2*' >57.!&43' .' -/4F 3!3.*1' /,' &' .2!4' /=&;' <&41' /,' 6*.&;',&3.*4*1' ./' &2&41;*' &41' -(/33*1' <5' &406<*(' /,' ;!..;*' 6*.&;' (/13' <*4.' &.' *!.2*(' *41' &41' ;//3*;5' !43*(.*1' !4' .2*' <&41' # ' -0.' 041*(' 3!3 9

!357203' # ' H .2*B-(&,.5I9' 2*' 3/4' /,')N;03' <(/.2*(' /,' .2&6&3' 203<&41' /,' .2*' ;*!&1' *(7*' !3' 3/4' !3' ;&0-03' .2*' ,&.2*(' /,' *;;*(72/4' *' !3' (*>&(1*1' &3' .2*' <0!;1*(' /,' 72B(&'8&,.*(A&(13' /(!4.2' &41' &3' /(!>!4&./(' /,' .2*' 3.26!&4' &6*3' 4';*>*413'2*'&77*&(3'&3'*0.(*6*;5'-044!4>' &41' -(&,.5" n!4 /6*(' 2*' !3' -&;;*1' .2*' H'3;5*3.' /,' &;;' 6*4'I'f!L'=!' $? g' 2*' (*&F 3/4' A25' 2*' !3' 704!32*1'!4' .2*' /.2*(' A/(;1' A2*(*' 2*' !3' ,/(-*1' ,/(' *=*(' ./' D**7' /4' (/;;!4>' &' <;/-D' /,' 3./4*' ./' .2*' ./7' /,' &' 3.**7' 2!;;' /4;5' ./' 3**!.' (/;;' &>&!4' ./' .2*' =&;;*5' &41' ./' 3.&(.' .2*' ./!;3/6*' .&3D' &>&!4' W ' O!' VT g' !3' 4/.' 6*4.!/4*1' <5' /6*(" &41' ;&.*(';*>*413'=&(5'/4'.2!3'7/!4.' --/(1!4>' ./' .2*' &--/04.' A2!-2' >!=*3' .2*' <*3.' !1*&' /,' 2!3' -044!4>' !357203'1!3-;/3*3' ./' .2*' (!=*('*' >/1' 3/703'!4'3*&(-2'/,'2!3'1&0>2.*('! >!4&

& ' !" ' 2/A' 32*' 2&1' <**4' -&((!*1' ..' <5' L*03' <0.' .2!3 !4,/(6&.!/4' A&3 4/.' >!=*4' 04.!;' 3/7!!3 2&3 3&.!3,!*1' .2*' -/41!.!/4' ;&!1' 1/A4' <5' !3572033' <5' -(*&.!4>' .2*' 37(!4>' *!(*4*' A2!-2' *=*(' &,.*(' 3077;!*1' .2*' -!.&F 1*;' &41' ./A4' /,' /(!4.2' f &03&4!&3 !!' V' `' $g' L*03' 1*3!(*3 ./' D!;;' !3572033' &3 & 704!32F 6*4.' ,/(' (*=*&;!4>' .2*' ,&-.3' &41' 3*413' *&.2' ./' 2!6' <0.' !3572033',*..*(3' *&.2' !4' 3.(/4>' -2&!43' &41' 4/' /4*' 1!*3' .!;;' &.';&3.' (3' 3*.3' 2!6',(**' &41' 2&413' !3572033'/=*(' ./' 2!6' 0.' 2*' -/6 6&413' 2!3' A!,*' 4/.' ./' !4.*(' 2!6' &41' 30--**13' !4' 7*(30&1!4>' ;0./' %&41' *(3*72/4*' ./';*.' 2!6'(*.0(4',/(' &A2!;*' ./' .2*' 077*(' A/(;1' !4' /(1*(' ./' 704!32' 2*(' A&4.'/,';/=*' &=!4>' 4/' 1*3!(*' ./'(*.0(4' ./' &1*3' 2*',/(>*.3' 2!3' 7(/6!3*' &41' *=*4F .0&;;5' *(6*3' 2&3 ./' -/6*' &41',*.-2' 2!6' 4' .2*' 7/3." /6*(!-';*>*413' 1533*03' /4' &--/04.'/,' 2!3 -044!4>'!3' 6&1*' .2*' 3/4' /,' % !3572033' &41' 4.!-;*!&' f /72/-;*3' 8 -' $TN',('C$U'' 0(' ':(' '" 'V@Cg G ;.72K;J-3' .' .2*43' &' </&(1' /(!'' !>!4&;;5' -/43!3.!4>' /,' .*4' 6*6<*(3',!=*' !4' .2*'-!.5'!.3*;,'&41',!=*'!4'.2*' *!(.*03'A2!-2' 307*(!4.*41*1'.2*'-/6'.(&1*'&41'7(*=*4.*1' 7(!-*3' <*/ 6!!B' *0/(<!.&4.' f 4'.2*'.!6*' /,' (!3./.;*' &$ " "' ' ("' V$g' .2*(*' A*(*' .A*4.5'!4'.2*' -!.5'&41',!,.**4' !4'.2*' *!(3*03 g' & ' $ 5(;&=*3' 8 g' 6/4>'.2*' 6 ' <*3!1*3' &'-;&33'/,'3*(,3';!D*'.2*',!" '/,' 2*33&;5' &41'.2*' '/,' 7&(.&'A2/'2&1'-/6*'./' .2!3' -/41!.!/4'.2(/0>2' <*!4>' -/4:0*(*1'!4' A&('A*',!41'*=*4'!4' /6*(!-'.!6*3'&-.0&;' (3;&=*3'4/.'1!,,*(!4>'./' &'=*(5'>(*&.'*0.*4.' ,(/6'.2*',(**' 2*5' 3**6'./' 2&=*' <**4' 7/33*33*1'!4';&(>*' 406<*(3'/4;5'<5'7(!4-*3' '"&41'-2!*,.&!43'A2/'*!.2*(' /<.&!4*1'.2*6' &3'</!.5' 4*07*1!.!/43'/(' </0>2.'.2*6' ,(/6'30-2' (/<<*(3',' 6*4' &3'.2*' 2-*4!'" "-!&43' 4'2!3./(!-'.!6*3' *',!41'.2*'!43.!F .0.!/4',' 3;&=*(5'=*(5'60-2'1*=*;/7*1'3/' .2&.'.2*(*'!3'3-&(-*;5'&' .&.*'!4'A2!-2'*=*4' "7//(*(' -!.!Q*43'1/'4/.'/A6'&'6&;*'/(',*6&;*' 3;&=*'./'1/'.2*' (/0>2'A/(D'04A/(.25'/,' &,(**' 6&4' 4' ..!-&'A2*4'.2*' .&.*'A&3' !4'!.3'6/3.',;/0(!32!4>'-/41!.!/4'.2*(*'A*(* ?N NNN' 3;&=*3'&</0.',/0(' .!6*3' .2*' 406F <*(' /,' ,(**' 6*4' 2*' (**D3' K03.!,!*1' 3;&=*(5'<5'&;*>!4>'.2&.'.2*(*'A*(*' -*(.&!4' <&(<&(!&43'A2/'2&1'<**4'!4.*41*1'<5'4&.0(*' ,1'3*(=*' 3' &' 6&..*(' /,',&-.' .2*' 3;&=*3' A*(*',/(' .2*'6/3.'7&(.'<&(<&(!&43' 4'*0" G-*7.!/4&;' -&3*3' (**D3' &;3/' A*(*' -&7.0(*1' !4'A&(" &41'A*(*'.203'(*10-*1'./'7*(6&4*4.' 3;&=*(5" <0.'&3'&' (0;*'.2*5'A*(*'*0-2&4>*1' /(',(**1'/4'7&5!4>'&'(&43/6' 2*'-/04'.(!*3' /,' 3!&' !4/(' 2(&-*' &41' .2*' 4/(.2*(4 (*>!/43' -/67(*2*41*1' 041*(' .2*' 4&6*' /,' -5.2!&' 3*4.' .2*' >(*&.*3' 406<*(3' ./' .2*' 2 ' /,'A2!-2'.2*' 6/3.!67/(.&4.' A*(*'&.' B; 3' 2 ?3'&41' 5Q&4.!06' .2*43' &;3/'2&1'&'3;&=*"6&(D*.' *37*-!&;;5'03*1'<5' -!.!Q*43' 2/' A!32*1'./' *07/3*' 3;&=*3' ,/(' 3&;*' .2&.'.2*5'A&4.*1'./' >*.' (!'/,' /3./,' .2*' 3;&=*3'!4' ..!-&'A*(*' 30-2' &3' 2&1' <**4'</(4',(/6',*6&;*' 3;&=*3' 2*'A*&;.25' 3/6*.!6*3' 7/33*33*1' 3*=*(&;' 2041(*13' /,' .2*6'/,'A2/6'4&.0(&;;5'/4;5'&7&(.'A/0;1' <*'D*7.'!4'.2*'2/03*' /6*'/,' .2*' (*6&!4F 1*(' A/(D*1' /4' .2*' ,&(63' !4' .2*' -/04.(5' A2!;*'/.2*(3'3*(=*1'/4' .2*' 6*(-2&4.6*4'&3' (/A*(3' /(' 3&!;/(3" f/.2*(3' !4' .2*' 6!4*3' &.' &0(!06g' /.2*(3' &>&!4' *!.2*(' 3!4>;5' /(' !4' 406<*(3' !4' &' 6&40,&-./(5' &41' 041*(' &' 307*(!4.*41*4.' A*(*' *4>&>*1" !4' 3/6*' .(&1*' /4' .2*!(' 6&3.*(3' &--/04.' 2*' /A4*(3' &;3/' 3/6*.!6*3' ;*.' /0.' 3;&=*3' ./' /.2*(3' 2*' ' A*(*' *67;/5*1' !4' *=*(5'-/4-*!=&<;*' D!41' /,' /--07&.!/4' !4' .2*' 2/03*' &41' A*(*' &;3/' *4.(03.*1' A!.2' .2*' *10-&.!/4' /,' .2*' </53' A2/6' .2*5' 2&1' ./'&--/67&45'*=*(5A2*(*' *37*-!&;;5'./' .2*' 3-2//;' &41' ./' .2*' " 30-2' 3;&=*3' A*(*' -&;;*1' 1 1' 41**1' &3' &(0;*' *=*4' .2*' -/66*4*3.' (**D' !,' 2*' -/0;1' 7/33!<;5' 6&4&>*' !.' 4*=*(' A*4.' /0.' 04*3F -/(.*1' <5'&3;&=*3',/:;/A*1'2!6 2*!(' .(*&.6*4.' 1!,,*(*1'&--/(1!4>'./' .2*' -2&(&-.*(' &41' .2*' 7*-04!&(5' 7/3!.!/4' /,' .2*' /A4*(' &41' &;3/' 1*7*41*1' /4' .2*!(' /A4' >//1':0&;!.!*3' &41' 03*,0;4*33' 4' >*4*(&;' .2*' .2*4!&43' A*(*' 4/.*1',/(' <*!4>' 6/(*' 206&4*' ./A&(13' .2*!(' 3;&=*3' .2&4' .2*' (*3./,' .2*' (**D3' 2*(*' A*(*' ;&A3' &;3/' .2&.' (*,*((*1'./' .2*6'&41'7(/.*-.*1' .2*6'&>&!43.' *0-*33!=*' -&7(!-*' &41' 2&(324* 33' 0.' .2*5' 2&1' 4/' ;*>&;' (!>2.3' ' .2*5' -/0;1' 4*1.2*(' <(!4>'&' -2&(>*'4/(' &77*&(' &' A!.4*33*3' ' A23' /4;5'A2*4' .2*5'A*(*' 70.' /4' .2*' (&-D' .2&.' .2*(*' =*1!*4-*' 2&1'&45'A*!>2.'&..&-2*1' ./!.' 0.' .2*' 6&3.*(' -/0;1'4/.'D!;;'&'3;&=*' 04;*33' .2*' ;&..*(' 2&1' <**4' -/41*64*1!4'&' ;&A"-/0(." /.2*(A!3*' 2*' <&1' ./' 7&5' &' 7*4&;.5'./3/6*1!=!4!.5' ,'-(0*;;5'.(*&.*1' &'3;&=*' -/0;1'3**D'7(/.*-.!/4'030&;;5'!4'.2*' .*67;*' /,' 2*3*03'&41'-;&!6'./' <*'3/;1'./' &4/.2*(' 6&3.*(' 4' -&3*' /,' 6&;.(*&.6*4.' <5'&'3.(&4>*(' .2*' 6&3.*(' -/0;1'<(!4>'&';*>&;' &-.!/4'&41'/<.&!4' 2*&=5'1&6&>*3' ;&=*3' 2&1'4/'7&(.!-0;&(' 1(*33'7(*3-(!<*1',/(' .2*6' <5';&A" <0.' .2*5'A*(*' 4/.' &;;/A*1' ./' ;*.' .2*!(' 2&!(' >(/A';/4>' 2*5'A*(*' 4/.' 7(/F 2!<!.*1',(/6'*4.*(!4>' .*67;*3'&41'3&4-.0&F (!*3'/(',(/6'.&D!4>'7&(.!4' 70<;!-' (*;!>!/03' ,*3.!=&;3'' <0.' .2*5'A*(*' *0-;01*1',(/6'.2*

&-.0&;' (*:0!(*6*4.3' <0.' 1*7*41*1' /4' .2*' ;000(!/03' ,&32!/43' A2!-2' <*-&6*' 6/(*' &41' 6/(*' 7(*=&;*4.' !4' .2*' ;&3.' .A/' -*4.0(!*3' /,' .2*' *70<;!-' 4' /;1*(' .!6*3' .2*' 2/03*' &41' *=*(5.2!4>'<*;/4>!4>'./'!.'A&3'!4'-2&(>*' /,' .2*' 8 6 &K/(1/6/' 3.*A&(19' A2/' 6&4&>*1' &;;' 2/03*2/;1' &,,&!(3' (*-*!=!B' &41' 37*4.' 6/4*5' 4*>/.!&.*1' 3&;*3' &41' 70(F -2&3*3' &41' 1!37/3*1' /,' .2*' 3./(*3' 2*4' .2*' *0.*43!/4' /,' .2*' 2/03*2/;1' 6&1*' !.' 4*-*33&(5'./'D**7'&'37*-!&;'7*(3/4'./'-/4.(/;' .2*' *07*41!.0(*' .2*' 3.*A&(13' ,04-.!/43' A*(*' ;!6!.*1' ./'3**!4>' .2&.' .2*' 2/03*' &41' ,0(4!.0(*' A*(*' 7(/7*(;5' -;*&4*1' &41' !4' &' >//1' 3.&.*' *3!1*3' 2!6' .2*(*' A*(*' 30<F /(1!4&.*' 3*(=&4.3' ,/(' .2*'=&(!/03' 1A*;;!4>3' .2*' 37&(*' (//63' ,/(' =!3!./(3' .2*' 32(!4*' /,' .2*' 2/03*2/;1' >/13' .2*' !6&>*3' /,' .2*' &4-*3./(3' .2*'=&(!/03' D!413' /,' ,0(4!.0(*' .2*' &(.'-/;;*-.!/43' &41' .2*' A&(1(/<*' &41' .2*(*' A&3' &;3/' &' 7/(.*(' /(' A2/' &--/(1!4>' ./' &4' /;1' -03./6' A&3' -2&!4*1';!D*' &' 1/>' f 0*./4!03' 5' 7(' ' /;06*;;&'$7(' `$N' =!1' !' !' ?' $ g 2*' D!.-2*4' A&3"!4' -2&(>*' /,' &' 7*-!&;' ('&4'*=*4'6/(*' *07*43!=*' 3;&=*' .2&4' .2*' *' &41' 041*(' 2!6'A*(*' &' 2/3.'/,'&33!3F .&4.3' A//1"-&(!*(3' 6&(D*."6*4' 7&3.(5F -//D3'*.-' 2*' 3*!"=!-*' &.' .&<;*' &;3/' 4*-*3F 3!.&.*1' &' 406*(/03' &..*41&4-*' /,' 1(*33*(3' 3*(=*(3' -&(=*(3' ,/(*".&3.*(3' -07"<*&(*(3' .&<;*"-;*&(*(3'&41'/.2*(3'A2/'3!6!;&(5'A*(*' 041*(' &' 37*-!&;' ,/(*6&4' .2*' " (' A2/' 3&A' ./' .2*' >*4*(&;' &((&4>*6*4.3' &41' ./' .2*' ;!>2.!4>' 2*' 6&3.*(' &41' 6!3.(*33' /,' .2*' 2/03*' A*(*' 3*(=*1' <5' 37*-!&;'=&;*.3' # ' A2/' &;3/' 2&1' ./' &44/04-*' =!3!./(3' &41' 7&>*3' &41' -2&6<*(6&!13' &41' 37*-!&;'3*(=&4.3' ,/(' .2*'<&.2'&41' .2*' ./!;*..*' .' A&3' -/43!1*(*1' /,' *37*-!&;' !67/(.&4-*' .2&.' A2*4' .2*' 6&3.*(' /(' 6!3.(*33' /,' .2*' 2/03*' ;*,.'!.'/4',//./(' !4' &;!..*(' .2*' 3;&=*3' ,/;;/A!4>' .2*6' 32/0;1' <*' 406*(/03' &41' (!-2;5' &..!(*1' /6*' 3;&=*3' A*4.' <*,/(*' .2*!(' 6&3.*(# " ' *37*-!&;;5'.2*' " " ' A2/' !4,/(6*1' 2!3' 6&3.*(' /,' .2*' 4&6*3' /,' .2*' 7*(3/43' .2*5' 6*.' /.2*(3' ,/;;/A*1'& ' /.2*(3'&>&!4'A*(*'./;1' /,,' ,/(' &..*41!4>' .2*!(' 6&3.*(' A!.2'./(-2*3' &41' ;&4.*(43' /4' ;*&=!4>' 7&(.!*3' !4' .2*' *=*4!4>' 2*' ;!..*(' /,' *&-2' 6*6<*(' /,' .2*' ,&6!;5' A&3' -&((!*1' <5' ,(/6' 3!0' ./' *!>2.' ' 7&(.!-0;&(;5' 3.(/4>' 6*4' &41' <5' 7(*,*(*4-*' &77&1/-!&43' /(' .(&=*;;!4>' &-(/33' -/04.(5' .2*(*' A&3' &;A&53' &' ;&(>*' *3-/(.' -/43!3.!4>' /,' -(/A13' /,' *:0*((!*3' /0.(!1*(3'>(//63'*.-' 2*' 6/3.!67/(.&4.' 7/3!.!/4' &6/4>' .2*' 3*(=&4.3' A&3' /--07!*1' <5' .2/3*' A2/6' .2*' 6&3.*(' 2!63*;,' -2/3*' ./ &33!3.' 2!6' !4' 2!3' <03!4*33' /(' 2!3' (*-(*&.!/43*' &3',/(' !43.&4-*' .2/3*' A2/' &..*41*1'./' 6/4*5' 6&..*(3' &41'./' .2*' 307*(=!3!/4' /,' .2*' 3;&=*3' 3*-(*.&(!*3' 7253!-!&43' (*&1*(3' &.' 6*&;3' /(' 10(!4>' .2*' <&.2' /(' <*,/(*' >/!4>' ./' 3;**7' ;!.*(&(5' 6*4' ;!<(&(!&43' &41' .(&43-!!<*(3' /,' </!D3' /(' /.2*(' D!413' /,' (*-(*&.!/4' .2*(*' A*(*' &;3/' 3;&=*3' A2/' 2&1' (*-*!=*1' &' 603!-&;' .(&!4!4>' " ' ,//;3' &41' (*3.*(3 2*' =&(!/03' -;&33*3' /,' 3;&=*3' 2&1' *&-2' !.3' 37*-!&;',/(*6&4' A!.2' &' 30<3.!.0.*' A2/6' 2*' *!.2*(' (*-*!=*1' ,(/6' 2!3' 6&3.*(' /(' </0>2.' A!.2' 2!3' 3&=!4>3' 2*3*' ,/(6*1' .2*' -;&33' /,' .2*' " ' A2/' *4K/5*1' .2*' 37*-!&;' -/4,!1*4-*' /,' .2*!(' 6&3.*(' .2!3' -;&33' !4-;01*1' 30-2' 3*(=&4.3' &3' ;//D*1' &,.*(' .2*' ,//1' -;/.2!4>' &41' 6*1!-&;' &..*4F 1&4-*' /,' .2*' 3;&=*3' .2*' 6&!4.*4&4-*' &41' A&.-2!4>' /,' .2*' =&(!/03' <0!;1!4>3' .2*' &--/04.3' /,' .2*' 2/03*2/;1' & ' &41' .2*' *07*43*3' /,' .2*' 6&3.*(' # " ' /04>' 3;&=*3' A*(*' .(&!4*1' ,/(' .2*' =&(!/03' (*:0!(*6*4.3' /,' .2*' 2/03*2/;1" &--/(1!4>' ./' .2*!(' &<!;!.!*3' .2*5' A*(*' .&0>2.' 3/6*' .(&1*' /(' &(.' /(' 2&1' 7(&-.!-*' >!=*4' .2*6' *!.2*(' !4' D**7!4>' &--/04.3' /(' !4' ;*&(4*1' 3.01!*3' 41*(' .2*' 67!(*'.2/3*' A2/' A*(*' 1*3.!4*1' ./' <*' 7&>*3' (*-*!=*1' .2*!(' *10-&.!/4' !4' 37*-!&;' 1 1 ' /(' *3.&<;!32 6*4.3' D*7.' 4/. /4;5'<5'.2*' *67*(/(' <0.' &;3/' <5' 7(!=&.*' -!.!Q*43' 3' !4' (**-*' .(&!4*1' 3;&=*3' A*(*' *3.&<;!32*1' !4' 3/6*' .(&1*' <5' .2*63*;=*3' /(' ;*.' /0.' /4' 2!(*" 30-2' A&3' .2*' -&3*' *=*4' A!.2' 3;&=*3' A2/' A*(*' &(.!3.3' /(' 6*4' /,' ;*&(4!4>' =*4' 7/3.3' /,' !41*7*41*4-*' 30-2' &3' .2*' &16!4!3.(&.!/4' /,' &4' *3.&.*' !4' .2*' -/04.(5' /(' /,' &' <&4D' /(' .2*' -/6 6&41' /,' &' 32!7' A*(*' *4.(03.*1' ./' 3;&=*3' A2/' (*-*!=*1' &' 32&(*' !4' .2*'7(/,!.3' /(' 7&!1' !4.*(*3.' /4' .2*' -&7!.&;' !4=*3.*1' /(' &' ,!0*1' 306' /,' 6/4*5' A2*4' .2*' -&7!.&;' A&3' .2*!(' /A4' /(' .2*' 3;&=*3' A*(*' &;;/A*1' ./' &-:0!(*' &' 7(!=&.*' ,/(.04*' # ' ,(/6' A2&.' .2*5' 3&=*1' /4' .2*!(' &;;/A&4-*3' &41' ,(/6' .2*' (*>0;&(' 7(/,!.3' /,' .2*!(' 3*(=!-*' 2*' 6&3.*(3' (*' >&(1*1' .2!3' &((&4>*6*4.' A!.2' ,&=/0(' *37*F -!&;;5' &3' !.' (*7(*3*4.*1' &' D!41' /,' -&0.!/4' 6/4*5' !4' -&3*' &45' 1&6&>*' A&3' 1/4* 2*' /6&4' 3;&=*' A&3' !4' .2*' *5*3' /,' .2*' ;&A' &' 6*(*' -2&..*;' &41' 2*4-*' &<3/;0.*;5' A!.;0/0.' &45' (!>2.3' &41' -/67;*.*;5' *07/3*1' ./' .2*' -&7(!-*' /,' 2!3' 6&3.*(' 2*' ;&..*(' -/0;1' -/67*;' 2!6' ./' 1/' .2*' 6*&4*3.' &41' 6/3.' 32&6*,0;' .2!4>3' -/0;1' ./(.0(*' /(' D!;;' 2!6' /(' -&3.' 2!6' /0.' A2*4' 2*' A&3' /;1' /(' A*&D;5' &41' &3' .2!3' .(*&.6*4.' &3' ;*>&;;5' 7*(6!..*1' !.' A&3' -&((!*1' /0.' !4' 7(&-.!-*' A2*4' /--&3!/4' /,,*(*1' 7*-!&;' -(0*;.5' A&3' *07*(!*4-*1' <5' .2*' -/04.(5"3;&=*3' A2/' A/(D*1' !4' -2&!43' !4

.2*' >(*&.*(' 7&(.' /,' .&;5' &41' A*(*' D*7.' !4' &' >0&(1*1' A/(D"2/03*' & 1 ' &.' 4!>2.'' 3/6*' /,' .2*6' A*(*' <(&41*1' /(' 2&1' /4*' 2&;,' /,' .2*!(' 2*&13' 32&=*4' .' A&3' .2*(*,/(*' &' 3*=*(*' 704!326*4.' ,/(' &'./A4'' 3;&=*' ./' <*' 3*4.' !4./' .2*' -/04.(5

2*' 030&;' 6/1*' /,' D!;;!4>' 3;&=*3' A&3' -(0-!,!K1/4' A2!-2' A&3' 70.' 1/A4' <5' .2*' 2(!3.!&4' *67*(/(3' ,' &' 3;&=*' 1&(*1' ./' A(*&D' =*4>*&4-*' /4' 2!3' 6&3.*(' *=*(5'3;&=*' A2/' A&3' 041*(' .2*' 3&6*' (//,' &.' .2*' .!6*' A&3' 70.' ./' 1*&.2' A!.2' 2!6' 2!3'-(0*;.5'/,' .(*&.6*4.' A2!-2' >(*A' -/4.!40&;;5' !4' .2*' ;&3.' -*4.0(!*3' ,' .2*' *70< -' <(/0>2.' /4' (*7*&.*1' &41' .*((!<;*' " " ' ' (' 41*(' .2*' 67!(*' .2*5' (*-*!=*1' 3/6*';*>&;' 7(/.*-.!/4'' !4' !.3'=*(5'<*>!44!4>' .2*' 6&3.*(3' (!>2.' ./' -/41*64' 2!3' 3;&=*3' ./' ,!>2.' A!.2' A!;1' <*&3.3' A&3' .&D*4' &A&5' ,(/6'2!6'&41' .(&43,*((*1' ./'&' (*>0;&('K01>*\' .2*' 7(*,*-.' /,' .2*' -!.5' &.' /6*' &41' .2*' 7(/-0(&./('!4' .2*' 7(/=!4-*3' 2*3*' /,! -!&;3' A*(*' &;3/' *67/A*(*1' <5' 4./4!403' !03' ./' (*-*!=*' .2*' -/67;&!4.3' /,' 3;&=*3' &</0.' -(0*;' .(*&.6*4.' &41' ./' 3*;;' .2*' 3;&=*3' ./' &4/.2*(' 6&3.*(' !4' -&3*' .2*!(' -/67;&!4.3' A*(*' ,/041' ./' (*3.' /4' .(0.2' &1(!&4' 1*7(!=*1' .2*' /A4*(3' /,' .2*' (!>2.' /,' D!;;!4>' &41' ./(.0(!4>' 3;&=*3' &.' .2*!(' 7;*&30(*' /(' /,' 3*;;!4>' .2*6' ./' D**7*(3' /,' >;&1!&./(!&;' 3-2//;3' /(' ./' 7(/-0(*(3' &41' ,!4&;;5' /4F 3.&4.!4' 7;&-*1' .2*' !4.*4.!/4&;' D!;;!4>' /,' &' 3;&=*' /4' N' ;*=*;' A!.2' 60(1*(' ' D!41' /,' 6&((!*1' (*;&./4' <*.A**4' 3;&=*3' -&;;*1' " ' A&3' 7*(6!..*1' &.' &4' *&(;5' .!6*' ' 41*(' .2*' 67!(*' !.' <*-&6*' &' (0;*' ./' (*>&(1'!.' &3' ;&3.!4>' &41' !41!33/;0<;*' &41' *=*4' ./' -*;*<(&.*' .2*' 6&((!&>*' /,' 3;&=*3' <5' A*11!4>',*3.!=!.!*3' &=!4>' 4/' ;*>&;' (!>2.3' .2*' 3;&=*' -/0;1' 4/.'>!=*' *=!1*4-*' !4' &' ;&A' -/0(.' &41' &3' !4' (**-*' /4;5' A2&.' 2*' 3&!1' A2*4' 041*(' ./(.0(*' A&3' 1**6*1' A/(.25' /,' -(*1!.' 2*' /6&4' ;!D*' .2*' .2*4!&4' >/=*(46*4.' 2&1' ' ' # ' ' A2/' /4' .2*' A2/;*' 2&1' .2*' 3&6*' ;*>&;' 7/3!.!/4' &3' .2*' 7(!=&.*' 3;&=*3' 2*5';!=*1' !4' 70<;!-' <0!;1!4>3' &33!>4*1' ./' .2*6' <5' .2*' -*43/(3' &41' (*-*!=*1',(/6' .2*' 70<;!-' -2*3.' &' 5*&(;5'306' ./' 7&5',/(' .2*!(' </&(1' & ' 2*5' A*(*' 7&(.;5' *6F 7;/5*1' &3' -03./1!&43' /,' .*67;*3' &41' 70<;!-' <0!;1!4>3' # $ ' 7&(.;5' &3' 3*(=&4.3' ./' .2*' =&(!/03' 7(!*3.2//13' &41' ./' .2/3*' 6&>!3F .(&.*3' A2/' 2&1' 10.!*3' (*;&.!4>' ./' .2*' 7/;!-*' 4&6*;5' .2*' -*43/(3' &41' &*1!;*3' 8A2/' 041*(' 0>03.03' 2&1' 041*(' .2*!(' -/4.(/;' & ' /,' ?NN' ' ' ,/(' .2*' 7(*=*4./4' /,' ,!(*39' .2*' /=*(3**(3' /,' .2*' A&.*(' 3077;5' &41' /,' .2*' 7(!3/43' &41' .2/3*' A2/' 2&1' ./ ' /'

3**' -&7!.&;' 3*4.*4-*3' -&((!*1' /0.' 2*' 3;&=*3' /,' .2*' ;&..*(' !4-;01*1' .2*' 2&4>6&4' # " - ' A2/' A&3' *4.(03.*1' A!.2' .2*' 37*-!&;' 10.5' /,' *0*-0.!4>' 3;&=*3' &41' A2/' 2&1' ./' ;!=*' /0.3!1*' .2*' 3:0!;!4*' &.*' & ' ' > ' & ;**7' 8 (' : " '*' &.' " ' 2*' 3/4',' !>2.'&41'.A!4"<(/.2*('/,' *&.2'& ' f ,' 0!=' @ $" 0=!' ?U@g' !.2' 2!3' <(/.2*(' *&.2' &--/(1!4>' ./' *3!/1' 2*' 1A*;;3' !7' .2*' *.*(4&;' 1&(D4*33' /,' .2*' ,&(.2*3.' *3.' W+(1' UVTK' 2*4-*' 2*' 3A**73'/=*(';&41' &41' 3*&' <(!4>!4>'3;**7' ./' 6*4' &41' >/13' 3!4-*' 2*' 2&3' 7/A*(' /=*(';&;' &;!D*' &41' -/0;1';0;;' ./' 3;**7' *=*4' L*03' 2!63*;,' 4' .2*' -2*3.' /,' B73 ;03' &.' ;567!&' </.2' <(/.2*(3' A*(*' 1*7!-.*1' &3' </53' 3;**7!4>' !4' .2*' &(63' /,' .2*!(' 6/.2*(' *&.2' <*!4>' 7&!4.*1' !4' <;&-D' &41' ;**7' !4' A2!.*' f &03&4!&3' =' $R' ' $g' ;**7' A&3' (*7(*3*4.*1' !4' &(.' !4' =*(5' =&(!/03',/(63'&41'3!.0&.!/43' &41',(*:0*4.;5' A!.2' .2*' A!4>3' /,' &4' *&>;*' /(' &' <0..*(,;5' /4' 2!3',/(*2*&1' &41' &' 7/775"3.31D' &41' &' 2/(4',(/6' A2!-2' 2*1(/77B' 3;06<*(' 07/4' .2/3*' A2/6'2*';0;;3'./'(*3.' 2*'*&(;!*('-/4F -*7.!/4' 6&1*' (*&63' .2*' 3!3.*(3'/,' ;**7' <0.'!4';&.*(' .!6*3'.2*'1(*&6">/1',!>0(*3'&3' 2!3'3/4' *(6*3'A&3'&;3/'&'>/1'/,'3;**7 ;!4>' 8 (' ! (" " * &.' " ' ' A*&7/4',/(' 20(;!4>' 6!33!;*3'-/43!3.!4>' /,' &'.2/4>'<(/&1'!4'.2*' 6!11;*' &41' >(/A!4>' 4&((/A*(' ./A&(13' .2*' *413' 2*' 6!33!;*' A&3' *!.2*(' &'(/041' 3./4*' /,' .2*' 3!Q*' /,' &' 2*4 3' *>>' &' <&;;' /,' <&D*1' -;&5' /(' &' ;*&1*4' </;' -&3.' !4' .2*' 2&7*' /,' &4' &-/(4' .' A&3' 7;&-*1' !4' .2*' <(/&1' 7&(.'/,' .2*' .2/4>' &41' .2*' 3;!4>*(' 8 (' (" "! *' &.' "2' ' 2/;1!4>' .2*' .2/4>' <5' </.2' *413' !4' !4' /4*' 2&41' 3A04>' !.' 3*=*(&;' .!6*3' (/041' 6&(D' <5' 6*&43' /,' ;*..!4>' >/' /4*' *41' /,' .2*' .2/4> 2*' 6/3.',&6/03' 3;!4>*(3' /,' &4.!F :0!.5' A*(*' .2*' !42&<!.&4.3'/,' .2*' &;*&(!-' 3;*3' .2*5' -&((!*1' .2(**3;!4>3'6&1*' /,' 7;&!.*1' (032*3' 2&!(' &41' .2*' 3!4*A3' /,' A!;1' <*&3.3' ,/(' ;/4>' 32/(.' &41' !4.*(6*1!&.*' 32/.3' (*37*-.!=*;5' &(!/03';*&1*4' 324></;.3' <*&(!4>' 6&(D3'/(' -2&(&-.*(!3.!-' !43-(!7.!/43' 2&=*' <**4' 7(*F 3*(=*1' 41*(' .2*' 67!(*' .2*'(*' -&6*' !4./' 03*' .2*' 3;!4>"3.&,,'8 &.' ' &' 3.&,,

,/0(' ,**.' !4' ;*4>.2' ./' .2*' *41' /,' A2!-2' &'
;*&.2*(4' 3;!4>' A&3',&3.*4*1' 4*' .2/4>' /,'
.2!3' (*&-2*1' ./' .2*' /.2*(' *41' /,' .2*' 3.&,,'
&41' A&3'./>*.2*(' A!.2' .2!3' 2*;1',&3.' <5' .2*'
(< ' A2/' 3A04>' .2*' 3.&,,' 3*=*(&;'
.!6*3' (/041' 2!3' 2*&1' &41' 3011*4;5' ;*.' >/'
.2*' ;/4>*(' .2/4>' .203' .2(/A!4>' &' ;&(>*('
6!33!;*' A!.2' 60-2' >(*&.*(' ,/(-*' .2&4' A&3'
7/33!<;*' A!.2' &'3!67;*' 3;!4>
/--03' ' ;//3*' 3;!77*(' /(' ;!>2.' ;/A'
32/*' ,!..!4>' *!.2*(',/.' A2!-2' .2*' /6&43'
&1/7.*1',(/6' .2*' (**D3' .' A&3' .2*'
-2&(&-.*(!3.!-' /,' //6*15' &3'.2*' ('
A&3' /,' .(&>*15' ,,/(&-*' ' RN' 8/,' .2*'
!&6<!-' 6*.(*9W H 04-' '-*7`(>'7?1*6'
>(&41*3:0*' (il
1-;!' 6/4>'.2*' /6&43'.2*' ' &3'
1!3.!4>0!32*1' !4' -/43.!.0.!/4&;' ;&A' ,(/6'
/6&4'30<K*-.3'A*(*'.2*'&;;!*3'A2/'A2!;*'
.2*!(' !41*7*41*4-*' A&3' (*-/>4!3*1' 3.//1'
!4'&'6/(*'/(';*33'1*7*41*4.' (*;&.!/4'./'.2*'
/6&4' .&.*' 41*(' .2*' *70<;!-'07' ./'
.2*' .!6*'A2*4'.2*'(!>2.'/,' -!.!Q*432!7'A&3'
-/4,*((*1' /4' &;;' .2*' ,(**' !42&<!.&4.3' /,'
.&;5'8RT' 9'.2*' &.!43'&41' .2*' .&;!&4'
-/6604!.!*3'/4'.2*'3&6*',//.!4>'A!.2'.2*6'
*4K/5*1'&'7(!=!;*>*1'7/3!.!/4'&6/4>3.'.2*'
/.2*(' &;;!*3' 4'.2*' 6!;!.&(5'/(>&4!Q&.!/4'
/,' .2*' /6&4' *70<;!-' .2*' -/.!4>*4.3'
A2!-2'.2*5',0(4!32*1'A*(*'-&;;*1' '!4'
-/4.(&1!3.!4-.!/4'./' .2*' ;*>!/43'&41' .2*'
4/4" .&;!&4'&00!;!&(!*3' & ' '&41'
' ' '" '&(*' .2*'-(*A3'
,((4!32*1'<5'.2*' &;;!*1'./A43'/,' .2*'32!73'
/,'A&(
/-(,..*3' ,' .2*43' </6'C?T' '3/4'
/,' .2*'3-0;7./(' /72(4!3/03'&41' .2*' 6!1F
A!,*' 2#*4&(>.*' *' 70(30*1',/(' &' .!6*'
2!3' ,&.2*(3' &(.' <0.' 3//4' >&=*' !.' 07'
2/;1!4>' !.' ./' <*' 2!3'7(/7*(' .&3D' !4' ;!,*' ./'
;&</0(' &.' .2*' 6/(&;' &41' !4.*;;*-.0&;' !6F
7(/=*6*4.'/,' 2!63*;,'&41'2!3',(!*413' !3'
!41!,,*(*4-*' ./' *0.*(4&;' 4*-*33!.!*3' *4&<;*1'
2!6' ./' <*&(' 2!3' 7/=*(.5' A!.2' .2*' 3&6*'
:0&4!6!.5'A2!-2'2' 7(*3*(=*1' !4' 1*&;!4>'
A!.2' .2*' :0&((*;3/6*' .*67*(' /,' 2!3' A!,*'
]&4.2!77*' *' ./!D' 4/' 7&(.' !4' &,,&!(3' /,'
.&.*'5*.'1!1'4/.'A!.21(&A',(/6'.2*'7*(F
,/(6&4-*' /,' 2!3' 10.!*3' &3' &'-!.!Q*4' !4' A&('
&41'7*&-*' *'1!1'4/.'>!=*' ,/(6&;'!43.(0-F
.!/4'<0.'3/0>2.'<5'6*&43'/,'1!&;*-.!-&;'1!3F
-/0(3*'!4'A2!-2'&45'/4*'6!>2.'K/!4'A!.2/0.'
7&56*4.'./' ;*&1' /4'.2*'5/04>'7*/7;*'A2/'
03*1'./'-/;;*-.'&(/041'2!6'./'.2!4D'&41'&-.'
!4' &--/(1&4-*' A!.2' (*&3/4' !,,*(*4.' &3'
&(*'.2*'(*7(*3*4.&.!/43'/,'2!6'>!=*4'<5'2!3'
707!;3'] 4 72/4'&41' ;&./'5*.'.2*5'&>(**'
!4'.2!3'.2&.'2*' A&3'&'-2&(&-.*(' /,'&<3/;0.*'
6/(&;' 70(!.5' A2/3*' -;*&(' 7*&-*' /,' 6!41
A&3' .(/0<;*1' <5'4/' 7&33!/4' !4' A2/6'
(*&3/4'&.'&;;' .!6*3'&33*(.*1'!.3'307(*6&-5'
/=*(' 3*430&;!.5' &41' A2/6'4/' -/43!1*(&F
.!/43' -/0;1' 6/=*' ,(/6' .2*' 1*-;&(&.!/4'/,'
2!3' -/4=!-.!/43' *' 7(*3*(=*1' .2!3' 04F
32&D*4',!1*;!.5'./' 2!3'-/4=!-.!/43'4/.'/4;5'
!4' *&(;!*(' 7&33&>*3' /,' 2!3' ;!,*' <0.' &;3/'
&.' .2*' .!6*' A2*4' &' &7!.&;' -2&(>*' A&3'
<(/0>2.'&>&!43.'2!6'/,'<*!4>'/0./,'&--/(1'
=1.2' .2*' (*;!>!/4' /,' .2*' .&.*' /,' !4.(/F
10-!4>' 4*A' >/13' 8&4' &--03&.!/4' ,/041*1'
07/4' 2!3' <*;!*,' !4' .2*' 1 "' &4' !4A&(1'
=/!-*' A2!-2' 03*1' ./' A&(4' 2!6',(/6' *=!;'
&41' 0(>*' 2!6'./A&(13' >//19' &41' /,' -/(F
(07.!4>' 5/0.2' ;.2/0>2'!.' A/0;1' 2&=*'
<**4'&4'*&35'.2!4>',/('2!6'./'2&=*'3-&7*1'
.2*' 3*4.*4-*' /,' 1*&.2'2*' 1!1'4/.' 2*3!.&.*'
,/(' &' 6/6*4.' !4' >!=!4>' *07(*33!/4'./' 2!3'
-/4=!-.!/4' !4' .2*' 6/3.' /7*4' 6&44*(' &41'
,/(' .2&.' -/4=!-.!/4' A&3' 70.' ./' 1*&.2' <5'
<*!4>' -/67*;;*1' ./' 1(!4D' &' 1(&0>2.' /,'
2*6;/-D' 8 **&;3/' *' &41' '
A!.2' -0.9
1&;;,&3' 8 2*' A/(1'7(/7*(;5'6*&43'
&4'&33/-!&.!/4'/(' -;0<' &41' A&3' *37*-!&;;5'
&77;!*1'./'.2*g'(*;!>!/03'<(/.2*(2//13&6/4>'
.2*' /6&43' 5' /(1*(' /,' .2*' .&.*' .2*5'
&..*41*1'./' .2*' -0;.' /,' 3/6*' 7&(.!-0;&('
/<K*-.' /,' A/(32!7' <5' K/!4.;5'-*;*<(&.!4>'
-*(.&!4' 3&-(!,!-*3' &41',*&3.3'*37*-!&;;5'/4'
.2*' &44!=*(3&(5'/,' .2*' ,/041&.!/4',n.2&.'
-0;.
2*' 6*6<*(3' -&;;*1' '3./!1' !4' &'
;*>&;;5'(*-/>4!3B'7/3!.!/4',' 60.0&;' /<;!>&F
.!/4'A2!-2'1!1'4/.'&;;/A'&45/4*' /,' .2*6'
./'&77*&(' &>&!43.'&4/.2*(' &3' &'7(/3*-0./('
!4' &'-(!6!4&;' -&3*' /(' ./'<*-/6*' " '
/,' .2*'7(/3*-0./(' /,' &' '/(' ./' /,;!'"
-!&.*' &3'K01>*' 07/4' &' ' 0-2' &'
</(.2*(2//1' A*(*' .2*' L' 1 '
&77/!4.*1' '$C'<5'.2*' *4&.*,/(' .2*'-0;.'
/,' .2*' 1*!,!*1' 0>03.03' &' -/;;*>*' /,' @$'
&41'&,.*(A&(13'/,'@R'6*6<*(3'/,'3*4&./(!&;'
(&4D'A2!-2'&;3/'.//,-' 07/4' !.3*;,' .2*'-0;.'
/,' ;&01!03'&,.*(' 2!3' 1*!,!-&.!/4'&41'</(*'
&,.*(' .2&.' .2*' ,,!-!&;' .!.;*' ' 1 2'
'$ ' *3!1*3'.2*3*'.2*(*'A*(*'
.2*' 'A$ ' + ',/(' .2*' -0;.'
/,' *37&3!&4' &41' !.03' .2*' " '
,/(' .2&.' /,' &1(!&4' " " " <" ',/(' .2&.'
/,' 4./4!403' !03'&41'/,' .2*'30--*33!=*;5'
1*!,!*1'*67*(/(3' #$ ")&
f 2*'3*-0;&(' -;0<3' '/(' 1 '
' A*(*' !4' .2*' ;&.*(' *70<;!-&4'
&>*' 60-2' .0(4*1' ./' &--/04.' ,/(' 7/;!.!-&;'
/<K*-.3' &41' .2*!(' /(>&4!Q&.!/4' 03*1' ,/('
70(7/3*3' /,' <(!<*(5' ' !-*((/3' 37**-2'
(/' , " ' ?' A&3' ' -/66/4' ,/('
5/04>' /6&43' ./' <*;/4>' ./' &4' /(1!4&(5

' /.2' /(&-*' &41' =!1' A*(*' 6*6<*(3' /,' /&* g
/;' 2*' .&;!&4'304"B/1' !1*4.!,!*1'A!.2' .2*' (**D' *;!/3'#
/;&(!06' '3041!&;'& '@ & '# &;3/' .2*',!&.'(//,' /,' .2*' /6&4' 1A*;;!4>"2/03*' & '/) HI
/;1!*(3' 6 ' 'F = ' 7 "'
' ' /(' .2*' >&6*' /,' H3/;1!*(3I' &' ' " ' '@ &
1 &' 2*'32/*'030&;;5'A/(4'<5' /6&43' A2*4' &.' 2/6*' 0.3!1*' .2*' 2/03*' .2*5' A/(*' !.' /4;5' A2*4' >/!4>' /0.' ./' 1!44*(' 0(!4>' .2*' 6*&;'!.3*;,' !.' A&3' .&D*4' /,,' .' A&3' &'3.(/4>'3/;*' /,' A//1' -/(D' /(' ;*&.2*(' A2!-2' A&3' ,&3.*4*1' /4' .2*' ,//.' <5' .A/' 3.(&73' 4*' /,' .2*3*' 7&33*1' <*.A**4' .2*' >(*&.' ./*' &41' .2*' 3*-/41' ./*' &41' A&3' -/4F 4*-.*1' <5' &' <0-D;*' /(' /.2*(A!3*' A!.2' &' 3.(&7' (044!4>' ;*4>.2A!3*' /=*(' .2*' !43.*7' 2*' 3*-/41' 3.(&7' A*4.' (/041' .2*' &4D;*' & '-0.3' ./' $ %&
1;;103' ' /6&4' >/;1' -/!4' !4.(/10-*1' <5' .2*' *67*(/(' /43.&4.!4*' &</0.' $@' A2!-2' (*6&!4*1' !4' 03*' 04.!;' .2*' 1/A4,&;;' /,' .2*' 5Q&4.!4*' *67!(*" !.3' A*!>2.' A&3' ! ';< ' !.3' =&;0*' $@3' RW1' & ' (" ' "
/;!003'&6 '. ' ' /6&4'A(!.*(' A2/' -/67/3*1' 7(/<&<;5'!4' .2*'3*-/41'2&;;' /,' .2*' (1' -*4.0(5' &' -/;;*-.!/4' /,' ! '& " '7 'Ua V
' <*..*(' D4/A4' <5' !.3' ;&.*(' .!.;*' , :(' 2*' 6/3.' !67/(.&4.' 7/(.!/4' 8.2*'>*/>(&72!-&;9!3'&4'&<3.(&-.'/,'&'.(*&.!3*' /4'>*/>(&725'-/67!;*1',(/6' ;!45 3' &.0(&;' !3./(5
1;;06' ' ? '&41' "
1;/4' ,' .2*43' 3/4' /,' 0*-*3.!1*3' </6'&</0.' ?CN' '1!*1' VVT' .2*' ,&6/03' .2*4!&4' ;&A>!=*(' & ' <*;/A' /4' .2*' $5 5 ") ' *' !3' /4*' /,' .2*' H' *=*4' !3*' *4 I' *' &;3/' 2/;13'&' 2!>2' 7/3!.!/4'&6/4>3.' .2*' ;5(!-' &41' *37*-!&;;5' &6/4>3.' .2*' *;*>!&-'7/*.3' /,' (**-*' 2*' 4/<;*' 7&.(!/.!36' &41' D!41;5' A!31/6' A2!-2' 6&(D*1' .2*' A2/;*' /,' 2!3' ;!,*',/041' *07(*3F 3!/4'!4' 2!3' 7/*63' A2!-2' A*(*'!4' 7&(.'-/4F 4*-.*1' A!.2' .2*' 7/;!.!-&;' -/41!.!/4' /,' 2!3' /A4' -!.5' &41' A*(*' &;3/' !4.*41*1' ./' .*&-2' 44!=*(3&;' 7(!4-!7;*3' /,' 206&4!.5' !4' &4' &77(/7(!&.*'7/*.!-&;',/(6' !3' *;*>!*3' &(*' 3&!1' ./' 2&=*' &6/04.*1' ./' V NNN' ;!4*3' !4'&;;
6/4>' 2!3'7/;!.!-&;'*;*>!*3' 6&5'<*' 6*4F .!/4*1' .2&.' /4' &;&6!3' <5' A2!-2' !4' 2!3' *&(;!*(' 5*&(3'2*' (/03*1' 2!3',*;;/A'-!.!Q*43' ./' (*-/4:0*(' .2&.'!3;&41' A2*4' !.' 2&1' <**4' .&D*4',(/6' .2*6' <5' .2*' *>&(!&43" &;3/' !3' 9-(" ' ' (' (" " ' /2!3 *.2!-&;' *;*>!*3' <*;/4>' .2*' 9-(" ' ' ' ,' .2*' ;&3.' .A/' 7/*63' !4' 7&(F .!-0;&(' A*' 7/33*33' *0.*43!=*',(&>6*4.3' f!4' A2!-2' .2*' *;*>!&-' 6*&30(*' !3' (&!3*1' ./' &' 4*A' 1!>4!.5'<5'<*!4>' 6&1*' .2*' =*2!-;*' /,' *.2!-&;' .*&-2!4>' ' 4*' /,' .2*' ,!4*3.',(&>F 6*4.3' /A*3' !.3' 7(*3*(=&.!/4' ./' !.3' <*!4>' :0/.*1' <5' *6/3.2*4*3' 5 ' A ' ; 1 2' " ' ' f G[' 2*(*' &(*' &;3/' 3/6*',(&>F 6*4.3' /,' 6!4/(' 7/*63' !4' !&6<!-3' &41' .(/-2&!-3' &3' A*;;' &3' &' /)/"' f 4' (!3F ./.;*3' $ " "' ' (" ' V' $@' A*' 2&=*'3*=*(&;':0/.&.!/43',(/6' /;/43'7/*63' !4-;01!4>' &</0.' .A*4.5' ;!4*3' A2!-2' &(*' /.2*(A!3*'04D4/A4g
/;/4!&4' /43.!.0.!/4' .' .2*' .!6*' /,' /;/4' .2*' .2*4!&4' .&.*'A&3'&;6/3.',&;;!4>' ./'7!*-*3' !4'-/43*:0*4-*' /,' 1!33*43!/43' <B' .A**4' .2*' 7&(.!*3' !4./'A2!-2' .2*' 7/70;&.!/4' A&3' 1!=!1*1' ' ,' .2*3*' .2*' 8 ' .2*' !42&<!.&4.3' /,' .2*' 4/(.2*(4' 6/04.&!4/03' (*>!/4' /,' ..!-&' .2*' 7//(*3.' &41' 6/3.' /77(*33*1' 3*-.!/4' /,' .2*' 7/70;&.!/4' 1*F 6&41*1' .2&.' .2*' 7(!=!;*>*3' /,' .2*' 4/<!;!.5' A2!-2' 2&1' .!;' .2*4' /<.&!4*1' 32/0;1' <*' 0..*(;5'3*.' &3!1*' 4/.2*(' 7&(.5' 7(*7&(*1' ./' <*' -/4.*4.*1' <5' 6/1*(&.*' -/4-*33!/43' A&3'-/67/3*1'/,' .2*' ,< ' .2*' !42&<!.&4.3' /,' .2*' 3.(*.-2' /,' -/&3.'-&;;*1' &(J;,&' 2*' .2!(1' A&3',(6*1' <5' .2*' 4/<;*3' -&;;*1' , ' /(' ' <*-&03*' .2*!(' 7(/7*(.5' ;&5',(/(' .2*' 6/3.' 7&(.' !4' .2*' "' .2*' ;*=*;'&41' 6/3.',(0!.,0;' 7&(./,' .2*' -/04.(5' /;/4' A2/'*4K/5*1' .2*' -/4,!1*4-*' /,' &2' 7&(.!*3'/4'&--/04.' /,'2!3'.(!*1' !43!>2.' &41' 3/041' K01>6*4.' A&3' -2/3*4' &(-2/4' <5' &' -/67(/6!3*' A!.2',0;' 7/A*(' ./' 70.'&4' *41' ./' .2*' 1!,,!-0;.!*3' &41' ./'(*3./(*7*&-*' <5' 6*&43' /,' ;*>!3;&.!/4' 4*' /,' .2*' 7(!6&(5' 6*&30(*3' /,' /;/4' A&3' .2*' ((81!3<0(1*4!4>' /(1!4&4-*9' 2!3' >&=*' &4' !6 6*1!&.*' (*;!*,' <5' -&4-*;;!4>' &;' 1*<.3' 70<;!-' &41' 7(!=&.*' .' .2*' 3&6*.!6*' 2*' 6&1*' !.' !;;*>&;' ,/(' .2*' ,0.0(*' ./' 3*-0(*' 1*<.3' 07/4' .2*' 7*(3/4' /,' .2*' 1*<./(' f (!3F ./.;*' $ " "' ' (" ' ?g
' &;3/' &;.(*1' .2*' 3.&41&(1' /,' -/!4&>*' f&41' /,' A*!>2.3' &41' 6*&30(*3' <5' !4.(/F 10-!4>' .2*' 0</!-'3.&41&(1'!4'7;&-*' /,' .2*' 2*!1/4!&4' /(' B>!4*.&4' ' $N9'] '4*A' 1(&-26&*' A*(*' .203' 6&1*' ./' -/4.&!4' .2*' 3&6*' &6/04.' /,' 3!;=*(' &3U ' /;1' 1(&-26&* ',0(.2*('!43.!.0.*1'&' .!6/-(&-5'8: 4 9'<5' A2!-2' .2*' *0-;03!=*' (!>2.3 A2!-2' .2*' 4/<;*'3' 2&1' .!;;' .2*4' 7/33*33*1' A*(*' 3*.' &3!1*' &41' .2/3*' A2/' 1!1' 4/.' <*;/4>' ./' .2*' 4/<!;!.5' (*-*!=*1' &' 32&(*'!4' .2*' (!>2.3' /,' -!.!0*43' &--/(1!4>' ./' &' 3-&;*' 1*.*(6!4*1' <5' .2*!(' 7(/7*(.5' &41' .2*!(' -/((*37/41!4>' 3*(=!-*3

./' .2*' .&.*' /('.2!3' 70(7/3*' 2*' 1!=!1*1'
.2*' 7/70;&.!/4' !4./' ,/0(' -;&33*3' ,/041*1'
/4' .2*' 7/33*33!/4'/,';&41' 8$9' *4.&-13!,!'
" '@(' 2&1'&.';*&3.' VNN' " '
8UVN'<032*;39' /,'-/(4'/(' '/,'A!4*'
/(' !!;' &3' 5*&(;5' !4-/6*' 8@9' '/(
D4!>2.3' A!.2'&.';*&3.' NN' " ' 8R9'
N 1 '87/33*33/(3',' &'5/D*'/,'/0*49'A!.2'
&.';*&3.'$VN' " ' 8C9' +('8A/(D*(3'
,/(A&>*39'A!.2';*33'.2&4'$VN' " '/,'
5*&(;5' !4-/6*' /;/4 3' ;*>!3;&.!/4' /4;5'
>(&4.*1'./'.2*',!(3.'.2(**'/,'.2*3*'',/0('
-;&33*3'&'=/.*'!4'.2*'*;*-.!/4'/,'(*37/43!<;*'
/,,!-*(3'&41'/4;5'./'.2*',!(3.'-;&33'.2*'7/A*('
/,'*;*-.!/4'./'.2*'2!>2*3.'/,,!-*3" &3' ,/('
!43.&4-*'.2&.'/,'&(-2/4' 2*' ,/0(.2'-;&33'
A&3'*0-;01*1',(/6'&;' /,,!-!&;'7/3!.!/43'<0.'
7/33*33*1'.2*'(!>2.'/,'=/.!4>'!4'.2*'>*4*(,.;'
70<;!-' &33*6<;!*3' A2!-2' -2/3*' /,,!-!&;3'
&41'7&33*1';&A3' 2*5'2&1' &;3/' .2*' (!>2.'
/,'.&D!4>'7&(.'!4'.2*'.(!&;3'<5'0(5'A6-2'
/;/4' 2&1'!43.!.0.*1' 2*' ,!(3.'.2(**'
-;&33*3'A*(*'</041'./'3*(=*'&3'2/7;!.*3"
.2*'-&=&;(5'A&3'(&!3*1'/0.'/,'.2*',!(3.'.A/'
A2!;*'.2*',/0(.2'-;&33'A&3'/4;5'*67;/5*1'&3'
;!>2."&(6*1'.(//73'/('/4'.2*',!**.'&41'&77&F
(*4.;5',/('7&5' 2*' /.2*(3'3*(=*1'A!.2/0.'
7&5' 2*' 1*(3'/,'/,,!-*'!4'.2*'.&.*'A*(*'
&;3/'047&!1' /;/4'*3.&<;!32*1'&3'.2*-2!*,'
" '</15'.2*'/04-!;'/,'.2*'/0('
041(*1'# '?) '!4'A2!-2'/4;5'.2*'
,!(3.'.2(**'-;&33*3'./!D'7&(.'&41'&3'-2!*,'
" '</15'.2*'(*/7&>03'# '
A2!-2'A&3'./'<*'',!;*1'07'<5'.2/3*'A2/'
2&1'<**4'&(-2/43' *3!1*3' .2!3' 2*'
7(/60;>&.*1'&-/1*'/,';&A3'*6<(&-!4>'.2*'
A2/;*'/,'70<;!-'&41'7(!=&.*';!,*'.2*'3&;0F
.&(5'*,,*-.3'/,'A2!-2';&3.*1';/4>'&,.*('.2*'
*41'/,'2!3'-/43.!.0.!/4
f --/(1!4>'./' (!3./.;*3'$ " "' '
(" 'C'&' /04-!;'/,'CN$'6*6<*(3'A&3'
7&(.'/,' (-/43' -/43.!.0.!/4'8&</0.'?@;'
9' 2*' 6*6<*(3'A*(*'3*;*-.*1'<5';/.'
,(/6'.2*'A2/;*'</15'/,'-!.!0*43' /;/4'
8A2/'A&3'&(-2/4'!4'VTC9'(*10-*1'.2*'
/04-!;'./'CNN'/4*'2041(*1',(/6'*&-2'/,'
.2*',/0('.(!<*3"&41'*0.*41*1'!4'3/6*'
7&(.!-0;&(3'.2*'7/A*(3'&;(*&15'7/33*33*1'<5'
.2*'(*/7&>03'# 'R9
/6403' 2*' /6&4'>/1'/,'3;**7'8>0
/72!3.3'8 (' ('(/7*(J'&'
4&6*'>!=*4'<5'.2*'(**D3'./'&;;'.2/3*'
A2/'7(/,*33*1'D4/A;*1>*' /('&'7&(.!-0;&('
D4/A;*1>*'/('&'7&(.!-0;&('&(.' *4-*'.2*'
*=*4' !3*' *4'&(*'/,.*4'.203'-&;;*1"<0.'
.2*'4&6*'A&3'*37*-!&;;5'&77;!*1'./'.2*'
*10-&.*1'6*4'/,'(*&15'37**-2'A2/',(/6'
&</0.'.2*'5*&('CVN' '!3*1'./'.(&=*;'
.2(/0>2' (**-*',(/6'7;&-*'./'7;&-*'&41
!67&(.*1'A2&.'.2*5'D4*A',/('6/4*5' 2*5'
2&=*'.2*'6*(!.'/,'2&=!4>'7/70;&(!0*1'.2*'
!4.*(*3.*!4'D4/A;*1>*'A2!-2'2&1'07'./.2&.'
.!6*'<**4'-/4,!4*1'A!.2!4'4&((/A'-!(-;*3'
&41'*37*-!&;;5'/,'2&=!4>'-/4.(!<0.*1'./.2*'
,/(6&.!/4',';*;/:0*4-*' /('.2*5'A*(*'.2*'
,!(3.'./'6&D*'3.5;*'&4'/<K*-.'/,'3.015'&41'
./'!43.!.0.*'3*(!/03'!4=*3.!>&.!/43'!4./'.2*'
&(.'/,'(2*./(!-&;*07(*33!/4' 2*!('.*&-2F
!4>'A&3'-2!*,;5'!4.*41*1'./'>!=*'.2*!('
707!;3'=*(3&.!;!.5'!4'.2*'0Z?'/,'37**-2'
&41'.203'./',!.'.2*6',/('.&D!4>'7&(.'!4'
70<;!-';!,*'3'.2*'30<K*-.'/,'.2*!('1!3F
-/0(3*3'.2*5'-2/3*'<5'7(*,*(*4-*':0*3.!/43'
/,'70<;!-'!4.*(*3.'./'7*(3/43'/,'>*4*(&;'
10-&.!/4' 2' *07(*33!/4' 2/A*=*(' &;F
A&53'(*6&!4*1'.2*'!67/(.&4.'.2!4>'A2!;*'
7/3!.!=*' D4/A;*1>*',*;;' 6/(*'&41' 6/(*'
!4./'.2*'<&-D>(/041' /6*'/,'.2*6'*=*4'
3.&(.*1',(/6'.2*'7/3!.!/4'.2&.'=!(.0*'&41'
D4/A;*1>*'A*(*'/4;5'30<K*-.!=*'4/.!/43'
, <1 '/,'<1*(&'A2/'&77*&(*1'&<0.'
CCV' '!3'4&6*1'&3'.2*',!(3.'/72!3."
&,.*('2!6'.2*'6/3.'!67/(.&4.'!3'6 1 '
/,' /4.!4!" , '/,'?/3'&41' '
/,' ;!3'&(*'-/4.*67/(&(!*3'/,'.2*'/.2*('
.A/' 2*(*=*('.2*5'&77*&(*1B'*37*-!&;;5'
!4' .2*43'.2*5'A*(*'(*-*!=*1'A!.2'.2*'
>(*&.*3.'*4.203!&36'&41'6&45',;/-D*1'./'
2*&('.2*6' =*4'30-2'6*4'&3'*(!-;*3'
0(!7!1*3'&41'/-(&.*3'3/0>2.'.2*!('3/-!*.5"
&41' /-(&.*3'/A*1'./'.2*6'60-2'.2&.'A&3'
30>>*3.!=*'!4'2!3'/A4'70(30!.'/,'7(&-.!-&;'
72!;/3/725'.2/0>2'/4'.2*'/.2*('2&41'2*'
7*(3!3.*4.;5'&..&-D*1'.2*'7(!4-!7;*3'041*("
; 14>'.2*!('70<;!-'.*&-2!4>"' 2*3*'7(!4F
-!7;*3'<*-&6*',0(.2*('*0&>>*(&.*1'041*('
.2*!('30--*33/(3'A2/'1!1'4/.'.2!4D'.2*5'
4**1*1'*=*4'D4/A;*1>*'/,',&-./.&;D'&3'
.2*5'7;*&3*1'&</0.'*=*(5.2!4>' --/(1F
!4>;5'.2*'3D!;;'/,'.2*' /72!3.'1*>*4*(&.*1'
!4./'6*(*'.*-24!-&;!.!*3'&41'-/67;*'.*'&<3*4-*'
/,'(*&3/4'&41'<*-&6*'&<3/;0.*;5'-/4.*67F
.!<;*'W '(/.*3' :' '6 '-2&7'
0=!!'&41' (' !1>A!-D3'*33&5'!4'.2*'
. " ' '(1:'!='@RRg
!.2'.2*'(*=!=&;' /,' (**D' *;/:0*4-*'
,(/6'&</0.'.2*'<*>!44!4>'/,'.2*'@41'-*4F
.0(5' '.2*'4&6*'/,'B72!3.'&..&!4*1'&'
4*A'1!3.!4-.!/4' .' .2&.'.!6*'.2*'4&6*'
A&3'>!=*4'./'.2*'7(/,*33!/4&;'/(&./(3'A2/'
&77*&(*1'!4'70<;!-'A!.2'>(*&.'7/67'&41'
1*;!=*(*1'1*-;&6&.!/43'*!.2*('7(*7&(*1'<*F
,/(*2&41'/('!67(/=!3*1'/4'.2*'37/.' !D*'
.2*'*&(;!*(' /72!3.3"'.2*5'A*4.'>*4*(&;;5'
,(/6'7;&-*'./'7;&-*'&41'A*(*'/=*(A2*;6*1'
A!.2'&77;&03*'&41'A!.2'6&(D3'/,'1!3.!4-F
.!/4'<5'.2*!('-/4.*67/(&(!*3'!4-;01!4>'
*=*4'.2*'/6&4'*67*(/(3'5 "'$(: 2

" ' ' ' ' ; " '
&41' , (' .2*' *;1*(' <*;/4>' ./' .2*'
,;/0(!32!4>' 7*(!/1' /,' .2!3' 3*-/41' 3-2//;' /,'
/72!3.3'&' 7*(!/1' GA2!-2' *0.*413' /=*(' .2*'
A2/;*' /,' .2*' @41' -*4.0(5' 2*5' &77*&('
&,(*32' &</0.' .2*' 6!11;*' /,' .2*' C.2' -*4.0(5'
%1*=/.!4>' .2*!(' 72!;/3/72!-' -0;.0(*' ./' .2*'
0*&;/03' <0.' 04&=&!;!4>' 1*,*4-*' /,'7&>&4!36'
" 6/4>' .2*6' A&3' .2*' *67*(/(' . "' &41'
2!3' -/4.*67/(&(!*3' ' " '
&41' +(' !h ' 6&5' <*' -/4F
3!1*(*1' &3' .2*';&3.' /72!3.' /,'!67/(.&4-*
?72R ;?3' 4*' /,' .2*' .2(**' >(*&.' (**D'
.(&>*1!&43' 3/4' /,' 72!;;03' .2*' A*&;.25'
/A4*(' /,' &' 6&40,&-./(5' /,' &(6/0(' A&3'
</(4' 7(/<&<;5' !4' CTV' ' (' !4' .2*' 1*6*'
G ; 403' 4*&(' .2*43' *' (*-*!=*1' &' -&(*F
,0;' *10-&.!/4' !4' 603!-' >564&3.!-3' &41'
1&4-!4>' &41' &3' &' </5' /,',!,.**4' A&3' -2/3*4'
./' ;*&1' .2*' 76&4' 304>' <5' .2*' -2/(03' /,'
</53' &,.*(' .2*' =!-./(5' /,' ,.!,!6!3' *'
&,.*(A&(13' 32/A*1' 2!3' 603!-&;' 3D!;;' !4'
70<;!-' A2*4' 2*' (*7(*3*4.*1' .2*' <;!41'
3!4>*(' 2 65(;3' !4' 2!3' 1(&6&' /,' .,!*' 3&6*'
4&6*' &41' 7;&5*1' .2*' -!.2&(&' A!.2' 30-2' 30-'
%-*33' .2&.' 2*' A&3' 7&!4.*1' &3' 2&65(!3' A!.2'
.2*' -!.2&(&' !4' .2*' . &' /!-!;*' >&!4'
!4' .2*' 7;&5' -&;;*1' .2*' > ' 2*' A/4',/('
2!63*;,' >*4*(&;' &16!(&.!/4' !4' &-.!4>' .2*'
7&(.' /,' .2*' 7(!4-*33' /,' .2&.' 4&6*' <5' .2*'
1*0.*(!.5' &41' >(&-*' A!.2' A2!-2' 2*' 3.(0-D'
.2*' <& ' f .2*4**03' 7' @N' g' 4' &;;' .2!4>3'
2!3' *0.*(4&;' &77*&(&4-*' &41' 1*6*&4/0(' A&3'
.2*' (*,;*0' /,' 2!3' ;/,.5' 6!41' .' 2!3' =*B'
!!(3.' &77*&(&4-*' &3' &' .(&>!-' 7/*.' !4' C?R'
A2*4' @U' 5*&(3' /;1' 2*' >&!4*1' &' =!-./(5' /=*('
! 3-25;03' A2/' &3' .2!(.5' 5*&(3' /;1*(' &41'
,(/6B.2&.' .!6*./' *0.(*6*' /;1' &>*' 2*' D*7.'
.2*' ,!(3.' 7;&-*' !4' .(&>*15' 4;!D*' 3'
-25;03' &41' 0(!7!1*3' 2*' 4*=*(' &--*7.*1'
.2*' !4=!.&.!/43' /,' ,/(*!>4' 7(!4-*3' 2/0>2'
7/33*33!4>' 4/' 37*-!&;' !4-;!4&.!/4' /(' ,!.4*33'
,/(' 7/;!.!-&;' &,,&!(3' &3' 2!3' ,(!*41' .2*' 7/*.'
/4' /,' 2!/3' 1*-;&(*3' 2*' 5*.' ./D' 2!3' 7&(.'
!4' 70<;!-' ;!,*' 203' !4' CCN' ' 2*' A&3'
/4*' /,' .2*' .*4' >*4*(&;3' A2/' A!.2' *(!-;*3'
A*(*' !4' -/66&41' /,' .2*' ,;**.' 3*4.' &>&!43.'
&6 3' A!4>' ./' 2!3' 7(&-.!-&;' 3D!;;' <*' A&3'
&;3/' *67;/5*1' !4' 4*>/.!&.!/43' A!.2' .2*' &;;!*3'
/,' 2!/3' &41' &6/3' 0(!4>' .2*' *;/7/4F
4*3!&4' &(' 2*' A&3' &>&!4' /4*' /,' .2*' >*4*(&;3'
./>*.2*(' A!.2' !/;&3' 4' C V' &3' " 2
' 2*' A&3' &.' .2*' 2*&1' /,' .2*' 6&4&>*F
6*4.' /,' .2*' .(*&30(*' /,' .2*' &;;!*3' A2!-2'
"A&3' D*7.' /4' .2*' -(<7<;;3" &41' A2*4' .2*'
X;0*3.!/4' &(/3*' !4' C$ ' /,' >!=!4>' ./' .2*' .&.*'
&4' /;!>&(-2!-&;' -/43.!.0.!/4' 2*' A&3' /4' .2*'
-/66!33!/4' /,' 7(*;!6!4&(5' !4=*3.!>&.!/4'
*' &;3/' ,!;;*1' &' 7(!*3.;5' /,,!-*

2*' -2&(6' &41' .2*' (*,!4*6*4.' /,' 2!3'
-2&(&-.*(' 3**6' ./' 2&=*' A/4' 2!6' 6&45'
,(!*413' 6/4>' .2*6' A&3' .2*' 2!3./(!&4'
*(1<.03' A2/' 60-2'(*3*6<;*1' 2!6' *'
A&3' &;3/' 1**6*1' <5' &4.!:f0!.5' &3' &' 6&4'
37*-!&;;5' <*;/=*1' <5' .2*' >/13' *37*-!&;;5' <5'
3-;*7!03' A2/3*' 7(!*3.' 2*' 7(/<&<;5' A&3'
&41' A2/' A&3' 3&!1' ./' 2&=*' >(&4.*1' 2!6

8 /6*+ &.*(&;\ 03*06 9

2*&;.2' &41' "=!>/0(' /,' 6!K;1' ./' *0.(*6*' /;1'
&>*' 5' .2*' .2*4!&4' !-/3.(&.*' 2*' 2&1' &'
3/4' ' ("' A2/' A/4'3/6*'(*70.*'&3'&.(&>!-'
7/*.' &41' <5' 2 (!3' /,' !-5/4' &4/.2*(' 3/4'
"',&.2*(' /,' .2*' (' A2/' >&!4*1'
,&6*' ,/(' 2!63*;,' <5' .(&>*1!*3' /,' 2!3' /A4'
G&41' &,.*(A&(13' <5' .2*' 7(/10-.!/4' /,' 2!3'
>(&41,&.2*(3' 1(&6&3' 2*(*' . ' &' 3./(5'
.2&.' &' :0&((*;' &(/3*' <*.A**4' /72/-;*3' &41'
2!3' 3/4' ;/72/4' /4' &--/04.' /,' 2!3' 7(/"

,*(*4-*' ,/(' .2!3' >(&413/4' &41' .2&.' A2*4' 3066/4*1' <5' ;/72/4' <*,/(*' .2*' -/0(.' &3' A*&D' !4' 6!41' &41' 04&<;*' ./' 6&4&>*' 2!3' &,,&!(3' 2*' /<.&!4*1' 2!3' /A4' &<3/;0.*' &-F :0!..&;' <5' (*&1!4>' .2*' -2/(03'<4' 2!3' 4&.!=*' 7;&-*' !4' .2*' &9 ' $ " ' f ;0.&(-2' 7' UUV' g' 0.' .2!3' &77*&(3' ./' <*' &';*>*41' ,/041*1' /4' &' 6!3041*(3.//1' 7;*&F 3&4.(5' /,' &' -/6!-' 7/*.' 2*' .&;*3' /,' 2!3' 1*&.2' A2!-2' 2&77*4*1' !4' CNV' &(*' &;3/' 65.2!-&;' --/(1!4>' ./' /4*' &--/04.' 2*' A&3' -2/D*1' <5' &' >(&7*' &--/(1!4>' ./' /.2*(3' 2*' 1!*1' *!.2*(' A2*4' 70<;!-;5' (*F -!.!4>' .2*' 1 " :' /(' ,(/6'*0-*33!=*' K/5' &.' 3/6*' 1(&6&.!-' =!-./(5' 2*' /4;5' ,&-.' 04&4!6/03;5'&..*3.*1' <5' 2!3' -/4.*67/(&(!*3' !3' .2&.' 2!3' 1*&.2' A&3' &3' 1!>4!,!*1' &3' 2!3' ;!,*' ' 3!4>0;&(' 3./(5' !3' -/44*-.*1' *=*4' A!.2' 2!3' ,04*(&;' d *' &(*' ./;1' .2&.' !/F 45303' <5' (*7*&.*1' &77&(!.!/43' !4' 1(*&63' 7(/67.*1' .2*' >*4*(&;' /,' .2*' 7&(.&43' A2/' A*(*' .2*4' !4=*3.!4>' .2*43' ./'>(&4.' &' .(0-*' ,/(' .2*' <0(!&;' /,' .2*' 7/*.' !4' .2*' ,&6!;5' >(&=*' /0.3!1*' .2*' -!.5' 4' 2!3' ./6<3./!'&' !(*4'&3'&'356</;'/,'.2*'-2&(6' /,' 7/*.(5' ,.*(' 2!3'1*&.2'.2*' .2*4!&43' A/(32!77*1' 2!6'&3'&'2*(/'&41' /,,*(*1'&4' &440&;'3&-(!,!-*' !4' 2!3' 6*6/(5' 4' ;&.*(' .!6*3'/4'.2*'7(/7/3&;' /,' .2*' /(&./(' 5-0('" >03' &' <(/4Q*' 3.&.0*' A&3' *(*-.*1' ./' 2!6' ./>*.2*(' A!.2' ;3-25;03' &41' 0(!7!1*3' !4' .2*' .2*&.(*' &41' /,'2!3'1(&6&3'&3'/,'.2*!(3' &4'&0.2/(!Q*1'&41'3.&41&(1'-/75'A&3'6&1*' !4'/(1*(' ./' 7(/.*-.' .2*6' &>&!43.' &(<!.(&(5' &;.*(&.!/43

/72/-;*3' A&3' &'=*(5'7(/;!,!-' 7/*.' 2*' 406<*(' /,' 2!3' 7!*-*3' !3' >!=*4' &3' <*.A**4' $@' &41' $ N' /,' A2!-2' &</=*' $NN' &(*' D4/A4' ./' 03' <5' .2*!(' .!.;*3' &41' <5' ,!(&>" 6*4.3' 0./4;5' 3*=*4' 2&=*' <**4' 7(*F 3*(=*1'-/67;*.*' 2*' + " '83/'4&6*1' ,(/6' .2*' -2/(03'&41' .(*&.!4>' /,' .2*' 1*&.2' /,' *(&-;*39' .2*' 8 -' .2*' ,(, ' .2*' 9 ' .2*'&9 ' + "" ' .2*'&9 ' $ " ' &41' .2*' 1 " ' 2*' ;&3.'" 6*4.!/4*1'7;&5'A&3'7!,;;0-*1'!4'.2*'37(!4>' /,'CCN'" (<,('!4'C$N'" .2*'&9 ' $ " ' A&3'4/.'70.' /4' .2*' 3.&>*' 04.!;' CN$' &,.*(' 2!3' 1*&.2' <5' 2!3' >(&413/4' /72/-;*3' ' *3!1*3' .(&>*1!*3' /72/-;*3' -/67/3*1'7&*&43' *;*>!*3' *7!>(&63' &41' &' A/(D' !4' 7(/3*' /4' .2*' -2/(03' !.2' 2!3' .(&>*1!*3' 2*' >&!4*1' .2*' ,!(3.' 7(!Q*' 6/(*' .2&4' .A*4.5' .!6*3' &41'3.!;' 6/(*' /,.*4' .2*' 3*-/41' <0.' 4*=*(' .2*' .2!(1' =*4' !4' 2!3' ;!,*.!6*' &41' !41**1' .2(/0>2' .2*' A2/;*' /,' &4.!:0!.5' 2*' A&3' 2*;1' ./' <*' .2*' 6/3.' 7*(F ,*-.' /,' .(&>*1!&43' /4*' /,' .2*' &4-!*4.' A(!.*(3' -&;;3' 2!6' .2*' H 707!;' /,' /6*(I W= ' " " ' ' " [' ,' ,,!3-25;03' !3' .2*' -(*&./(' /,' (**D' .(&>*15' !.' A&3' /72/-;*3' A2/' <(/0>2.' !.' ./' 7*(,*-.!/4' *' *0.*41*1' .2*' 1(&6&.!-' &-.!/4'8$9' <5' .2*' !4.(/10-.!/4' /,' &' .2!(1' &-./(' A2!;*' !4' 2!3' ;&3.' 7!*-*3' 2*' *=*4' &11*1' &' ,/0(.2" &41' 8@9' <5' &' 10*' 30</(1!4&.!/4' /,' .2*' -2/(03' ./' A2!-2' 2/AF *=*(' 2*' >&=*' &' 6/(*' &(.!3.!-' 1*=*;/76*4.' A2!;*' 2*' !4-(*&3*1' !.3' 406<*(3',(/6' .A*;=*' ./' ,!,.**4' 7*(3/43' *' &;3/' 7*(,*-.*1' .2*' -/3.06*3' &41' 1*-/(&./!/4' *K*-.!4>' .2*' 7;&4' /,' 3-25;03' <5' A2!-2' /4*' 3./(5' A&3' -&((!*1' .2(/0>2' .2(*' 30--*33!=*' 7;&53' 2*' 6&1*' *=*(5' .(&>*15' !4./' &' -/67;*.*' A/(D' /,' &(.' A!.2' &' 3*7&(&.*' &41' -/67;*.*' &-.!/4' .2*' 6/.!=*3' ,/(' *=*(5' 1*.&!;' <*!4>' 6/3.' 3D!;,0;;5' 1*=!3*1' !3' &(.' A&3' *37*-!&;;5' 32*A4'!4'.2*' A&5'!4' A2!-2' .2*' &-.!/4' !3' 1*F =*;/7*1',(/6' .2*' -2&(&-.*(' /,' .2*' ' " ' /72/-;*3' >(*&.' 6&3.*(5' /,' 2!3' &(.' &77*&(3' &<'=*' &;' !4' .2*' -;*&(4*33' A!.2' A2!-2' 2*' 7/0(.(&53' 2!3' -2&(&-.*(3' A2!-2' &(*' 1*=*;/7*1' A!.2' &' 3-(070;/03' &..*4.!/4' ./' 1*.&!;3' &41' !4' A2!-2' 2*' 1/*3' 4/.' -/4.*4.' 2!63*;!' ;!D*' 3-25;03' A!.2' 6*(*' /0.;!4*3' 4/(' &3' 0(!7!1*3' /,.*4' 1!1' A!.2' -/7!*3',(/6' -/66/4' ;!,*' !3' 2*(/*3' .//' &(*' !1*&;' ,!>0(*3';!D*' .2/3*' /,' B3-25;03' 2!;*' .2*5' ;&-D' .2*' 307*(206&4' ;/,.!4*33' /,' .2*' *&(;!*(' 7/*. 3'-(*&.!/43' .2*5' 2&=*' &' -*(.&!4' !1*&;' .(0.2' /,' .2*!(' /A4' /72/-;*3' 30-F -**1!4>' !4' 1/!4>' A2&.' A&3' !67/33!<;*' ,/(' 3-25;03' &41' 0(!7!1*3' A!.2' .2*!(' 7*-0;!&(' .*67*(&6*4.3' !4' *07(*33!4>' .2*' 4/<;!.5' /,' .2*' ,*6&;*' -2&(&-.*(' !4' !.3' >*4.;*4*33' &3' A*;;' &3' !4' !.3' 2*(/!-' -/0(&>*' 4' -/4.(&3.' /' 0(!7!1*3' /72/-;*3' ;!D*' 3-25;03' !3' 7(/,/041;5'(*;!>!/03" &41'.2*'&..!.01*'A2!-2' 2*&1/7.3'./A&(13'.2*' 7/70;&(' (*;!>!/4' !3' 6&(D*1' <5' &4' !43.!4-.!=*' (*=*(*4-*' 2*' >(&-*' 7*-0;!&(' ./' /72/-;*3' 4&.0(*' 6&D*3' !.3*;,*;.'*=*4' !4' 2!3' ;&4>0&>*' .2*' -2&(6' /,' A2!-2' A&3' 04!=*(3&;;5' 7(&!3*1' <5' .2*' &4-!*4.3' !.2' 2!3' 4/<;*' 3!67;!-!.5' 2*' .&D*3' !4' .2!3' (*37*-.' &;3/' &' 6!11;*' 7;&-*' <*.A**4' .2*' A*!>2.!4*33' &41' </;14*33' /,' .2*' ;&4>0&>*' /,' 3-25;03' &41' .2*' 36//.2F 4*33' &41' (2*./(!-&;' *6<*;;!326*4.' A2!-2' 1!3.!4>0!32' .2&.' /,' 0(!7!1*3

72(/4' ,' 5(&-03*' ' (**D' A(!.*(' /,' 6!6*3' &4' *;1*(' -/4.*67/(&(5' /,' 0(!F 7!1*3' *' -/67/3*1' !4' .2*' /(!&4' 1!&;*-.' 7(/3*' 1!&;/>0*3'7&(.;5'3*(!/03'7&(.;5'-/6!-' A2!-2',&!.;00;;5'(*7(*3*4.*1'3-*4*3'/,'&-.0&;' ;!,*'6/3.;5'!4'.2*';/A*(' -;&33*3'!4.*(37*(&4' A!.2' 406*(/03' 7(/=*(<3' &41' -/;;/:0!&;' /,(63' /,' 37**-2' 4' 37!.*' /,' .2*!(' 7(/3*' ,/(6' /72(/43' 6!6*3' A*(*' (*>&(1*1' &3' 7/*63' <5' .2*' &4-!*4.3' 4' .2*43' .2*5

&(*' 3&!1' ./' 2&=*' <*-/6*' D4/A4' .2(/0>2'
;&./' A2/' .2/0>2.' =*(5' 2!>2;5' /,' .2*6'
&41' 6&1*' 03*' /,' .2*6' ,/(' .2*' 1(&6&.!-'
,/(6',' 213'1!&;/>0*3' fS0!4.!;!&4'!' $N`' $U"'
!/>*4*3' &*(.!03' !!!' $ g' ,.*(' 2!3' 1*&.2'
!.' !3' 3&!1' .2&.' .2*5' A*(*' ,/041' 041*(' 2!3'
7!;;/A'./>*.2*(' A!.2' .2*' -/6*1!*3'/,' (!3F
./72&4*3' 4' .2*' ;*0&41(!4*' &>*' 2*/F
-(!.03' .//D' .2*6',/(' &'7&..*(4' !4' 2!3' ' : '
f*37*-!&;;5'!4'.2*' & Q H '' $Vg' 2*'
(**D' >(&66&K!&43' &;3/' 7&!1' 7&(.!-0;&('
&..*4.!/4'./.2*6' 4&--/04.'/,'.2*'7/70;&('
!1!/63'.2*5'-/4.&!4*1' 2*',(&>6*4.3'7(*F
3*(=*1'&(*'3/'3-&4.5'.2&.'.2*5'>!=*'4/'4/.!/4'
/,' .2*' -/4.*4.3' &41',/(6'/,' A!*'7!*-*3*' !4'
&,!5' &3*' .2*5' &44/.' 2&=*' <**4' !4.*41*1'
,/(' 70<;!-' (*7(*3*4.&.!/4' /72(/43' 3/4'
] 4&(-203'A2/' ;!=*1' 10(!4>' .2*' (*!>4' /!'
!<453;03' '&;3/' (/.*' 6!6*3
72(4!3.&*' ,,!-*(3'&6/4>3.'.2*' (**D3'
A2/' ;//D*1' &,.*(' .2*' 6/(&;' <*2&=!/0(' /,'
.2*'5/0.2'!4'.2*'>5 6 4&3!&'8> 0 9' f (!3./.;*'
$ " "' ' (" 'C@g
1(&403' ' (**D'7253!-!&4',(/6 72*303'
A2/' ;!=*1' !4' .2*' ,!(3.' 2&;,' /,' .2*' @41'
-*4.0(5' '!61*(' (&K&4' &41' &1(!&4'
!3'A(!.!4>3' 6W*' 4/A'(*7(*3*4.*1'<5'&'A/(D'
/,' -/43!1*(&<;*' *0.*4.' /4' .2*' 1!3*&3*3' /,'
A/6*4'&41'&'30(>!-&;'.(*&.!3*' /4',(&-.0(*3'
2*' A(!.!4>3' /,' 33!!03' 0(;!&403'# '/4'
' " '$(" '5 '&(*'.(&43;&.*1'
,(/6'2!6
/(. 3'87(/7*(!K(' H';/.3'I9' 6&;' .&<;*.3'
03*1',/(' &0>0!5'!4'1!,,*(*4.' 7&(.3'/,' .&;5'
37-!&;;5'!4'.2*'.*67;*' /,' /(..!4&'&.' (3*"
4*3.*' f !-*(/'5 '5 " '!!'C$' `' R?g' 2*5'
A*(*' /,' /&D' /(' <(/4Q*' A!.2' 3/6*' 3&5!4>'
*4>(&=*1'07/4'.2*6' &41' A*(*'320,,;*1'&41'
1(&A4' <5'&' </5' *=*4.**4' 30-2' 3&5!4>3'
8,/0(' !4' .2*' /(!>!4&;' <(/4Q*' &41' .2*' (*3.'
-/7!*39'&(*'3.!;;'7(*3*(=*1' 2*5'&(*'D4/A4'
&3'.2*' ' " '<0.'.2*5'&77*&(' ./'
2&=*' (*&;;5'<*;/4>*1'./'.2*'/(&-;*'/,' *(5 4'
&. =!06'#,& Q
2*'3&6*'4&6*'A&3'>!=*4'8$9'./'7&33&>*3'
/,'3/6*' </!D'03*1'./' ,/(*.*;;' *=*4.3' .2*'
6*.2/1' <*!4>'./' /7*4' .2*' </!D' &.' (&41/6'
,/(' A2!-2' 70(7/3*' 2(!3.!&43' 03*1' .2*'
!<;*' /(' 8@9' ./' ;!4*3' /,' 7/*.(5' *37*-!&;;5'
/,' *(>!;' A(!..*4' /4' ;*&=*3' &41' 1(&A4'&.'
2&72&Q&(1' W = 1M " '&(*' 6*4F
./!/4*1'!4' 7&(.!&403' "'@'&41'&;;01*1'
./' !4' &67(!1;03' - $C [4'
.2*' 0.' >!=*4' 041*(' 0\ ' &-2 3!3' !3'
2/;1!4>'.2(**'3/(.*3g
,!3;> 4*3' (**D'6&.2*6&.!-!&4',(/6'
>57.' A2/' &33!3.*1' 3*3&(' !7' .2*' -/((*-F
.!/4'/,'.2*'^/6&4'-&;*41&('!4'C?' -' &$ '
"

?3!72&4`3' ,' 5(&-03*" &' (**D' .(&F
>*1!&4',/,'.2*' ;*0&41(!4*'A '& 'A2/'
2=*1'&</0.' NN' ' (' ,' 2!3' 7;&53' /4;5'&'
,*A';!4*3'2&=*'<**4'7(3*(=*1
/3!.2,!03' ,' ;*0&41(!&'!4'.2*' /&1"
&' (**D' .(&>*1!&4'/4*'/,' .2*' ;*0&41(!4*'
, ' & ' *' ;!=*1' !4' .2*' ,!(3.' 2&;,'
/,' .2*' (1' -*4.0(5' '!4' .2*'43' &41' !4'
;*0&41(!&'!4' >57.' 4' &4' *7!B&6'/,'
.2*' (**D' 4.2/;/>5' f=!!' UNUg' 4/' !3' -*;*F
<(&.*1'&3'.2*'(*3./(*(',' .2*'3&.5(!-'1(&6&'
*' 3.!;;' 7/33*33' &4' !4.*(*3.!4>',(&>6*4.'
/,' 2!3' 3&.5(!-' 7;&53'.2*' 5 (" 'f.A*4.5"'
A 1 '7'R@@'*1' $RRT
/37!.&' 8H.2*' 3&=!4>' >/11*33I9' 7!F
.2*.' /,' 3*=*(&,' /6&4' >/11*33*3' & 1' /,'
04/9
/303' ' -*;*<(&.*1' &(.!3.' !4' 6/3&!-'
A2/' B&3'A/(D!4>'&77&(*4.;5'&.'.2*'.!6*/,'
.2*' ..J;;1)' !4' *(> 6 4' .' A&3'.2*(*'
.2&.' 2*' *0*-0.*1' 2!3',&6/03'A/(D' H 2*'
43A*7.' /03*'I'& ' ' 3/' &;*1'
<*-&03*' (*64&4.3'/,',//1' &41' &;;' .2&.' !3'
030&;;5' 3A*7.' &A&5' A*(*' (*7(*3*4.*1'
3.(*A4'&</0.'!4'.2*' 6/3.'&(.!3.!-'A&5'07/4'
.2*' ,;//(' H 0-2' ./' <*' &16!(*1'7!' .2!3'
A/(D' f3&53' ;!45' OOO=!' $RCh' !3' &' 1 =*'
1(!4D!4>' &41' 1&(D*4!4>'.2*' A&.*(' <5'.2*'
32&1/A' /,' !.3' 2*&1'' A2!;*' /.2*(' 1/=*3'&(*'
3044!4>' &41' 7;06!4>'.2*63*;=*3' /4' .2*'
(!6' /,' .2*' =*33*; I' 2!3' !3' -/7!*1' !4' .2*'
6/3&!-'f,/041'!4' &1(!&43' !:;&'&.' !=/;!'
&41' 4/A' !4' .2*' &7!./;!4*' 03*06' &.'
/6*' & ' 0 (',!>'$9
/.C1*3' ' (**D' 7/*.',(/6' &(4*!&'
!4' 2(&-*' A2/' ;!=*1'&.' ;*0&41(!&'041*('
./;*65' 2!; 1*;7203'&</0.' @U?' ' *'
!3'3&!1'./'2&=*' <**4'1(/A4*1'!4'.2*'3*&'!4'
&' ;*&1*4' -2*3.',/(' 3/6*' 3&(-&3.!-' (*6&(D'
&</0.'.2*' 6&((!&>*' /,' .2*' D!4>' A!.2' 2!3'
/A4*3!3.*(' (3 4 *' *' -/67/3*1'!4' /4!-'
1!&;*-.'&41'!4'&7*-0;!&(' 6*.(*' 4&6*1'&,.*('
2!6'& ' /(' ' '7/*63'
-&;;*1' " ' 6&;!-!/03' 3&.!(*3'7&(.;5'*4'
!41*;!-&.*'30<K*-.3'A2!-2'A*(*'!4.*41*1',/('
(*-!.&.!/4' &--/67&4!*1' <5'&' 6!6!-' 1&4-*'
&41'&;3/'.(&=*3.!*3'/,'65.2/;/>!-&;'30<K*-.3'
30-2'&3' .2*' ;!&1' /,' /6*('' *' ,/041'
406*(/03'!6!.&./(3
/.*('8H' ' 9' 4'*7!.2*.'/,'3*=*(&;'
(**D'>/13'8*>'/,'L*039'f&41'&;3/'/,'3*=*(&;'
D!4>3'**>'./;*65' D!4>'/,' >57.g
7&(.'8 (' ' H .2*' 6*4'3/A4!9'
2*' 6*4' !4' ,0;;' &(6/0(' A2/' 37(&4>' 07'
,(/6'.2*'.**.2'/,' .2*'1(&>/4'/,' (*3'A2*4'
3/A4' <5' &1603' 4' .2*!(' <!(.2' .2*5'
!66*1!&.*;5',/0>2.' A!.2' /4*' &4/.2*(' .!;;'
/4;5',!=*' (*6&!4*1' 2*' 30(=!=/(3'2*;7*1

&1603 ./ ,/041 2*<*3 &41 A*(* .2* &4-*3./(3 /,.2* 2*<&4 4/<!;!.5
7,.(.!&003 / 6&4 2!3./(!&4 8 **
))
7&(.;&.3 4 7&(.& .2* (0;!4>-;&33 /, .2/3* A2/ 2&1 .2* ,0;; (!>2.3 /,-!.!Q*43 &3 1!3.!4>0!32*1 ,(/6 .2* 30<*-. [! &41 8 09 2*5 A*(* 1!=!1*1 * 9 2*!(406<*(!3 3&!1 4*=*(./ 2&=*** *0-**1*1 $N NNN &41 &3 .2*5 A (* 0..*(;5 /77/3*1 ./ .2* &16!33!/4 /, ,/(*!>4 *;*6*4.3 !. A&3 -/43.&4.;5 1*-(*&3!4> .2* .!6 * /, .2* *(3!&4 A&(3 !. .!;; &6/04.*1 ./ R NNN &</0. @N ./ ;!..;* 6/(* .2&4 $ NNN
2*5 A*(* -&;;*1 (86*4 32&(!4> *:0&; (!>2.39 A!.2*(*,*(*4-* ./ .2* *:0&;!.5 *3.&<;!32*1 &6/4>3. .2*6 <5 .2* ;*>!3;&./!4 /, KB-0(>03 8$9 !4 .2*!(*10-&./!4 . (1$ A2!-2 A&3 *0-;03!=*;5 1!(*-.*1 ./A&(13 ,!.F .!4> .2*6 , /(3*(=!-* !4 A&(8@9 !4 .2*!(A&5 /, ;!=!4> *37*-!&;;5 !4 .2* 6*&;3 2!-2 .2*5 2&1 !4 -/6 6/4 # $* A ! 8R9 !4 .2*!(7(/7*(.5 8C9 &41 !4 .2*!(7/;!.!-&; (!>2.3
/ *=*(5 ,&6!;5 /, &4 *:0&; 7/(.!/4 /, ;&41 A&3 &33!>4*1 <5 5-0(>03 A!.2 &4 406<*(/, 2*;/.3 A2/ 2&1 3*..;*1 07/4 !. A2/ 2&1 ./ -0;.!=&.* .2* 7(/7*(.5 &41 1*;!=*(.2* 7(/10-* ./ !.3 7/33*33/(2* .2*63*;=*3 A*(* 4/ &;;/A*1 ./ *4>&>* !4 &2&41!-(&,. /(!4 .(&1* /(!4 &>(!F -0;.0(* .2*!(A2/;* ;!,* 2&1 ./ <* 1*=/.*1 ./ .2* 3*(=!-* /, .2* .&.* &41 .2*(*,/(* .2*5 2&1 .2*!(&</1* !4 7&(.& !.3*;, 2* &;;/..*1 ;&41 &41 .2* 2*;/.3 A*(* &--/04.*1 .&.* 7(/7*(.5 &41 .2* 7/33*33/(3 2&1 4/ D!41 /,(!>2./ 1!37/3* /, .2*6 &6!;!*3 A2!-2 A*(* 15!4> /0. A*(* 7(*3*(=*1 <5 &1/7.!4> 3/43 /, ,&6!;!*3 (*;&.*1 ./ .2*6 &41 3!6!;&(;5 2*!(*33*3 A*(* 6&((!*1 ./ 6*4 A!.2/0. !42*(!.&4-* /, .2*!(/A4 , & ,&6!;5 /43!3.*1 /, 3*=*(&; 6&; 6*6<*(3 .2*4 .2* *;1*3. A&3 -/43!1*(*1 &3 2*&1 /, .2* ,&6!;5 &41 2&1 ./ 307F 7/(. 2!3 <(/.2*(3 2* /(!>!4&; *:0&;!.5 /, 7(/7*(.5 -&6* ./ &4 *41 7&(.;5 .2(/0>2 .2* *0.!4-.!/4 /, 6&45 ,&6!;!*3 &41 .2* .(&43,*(*4-* /, .2*!(;/. /, >(/041 7&(.;5 <5 .2* 3!;*4. &<(/>&.!/4 /, .2* ;1 ;&A A2!-2 1!1 4/. &;;/A .2* ./ 7/33*33 3!;=*(/(>/;1 <0. -2!*,;5 &,.*(.2* ;&A /, 7. 1*03 <5 A2!-2 .2* ,(* 1!37/3&; /, ;&41 A&3 &;;/A*1 !, 4/. <5 3&;* &.;*&3. <5 >!,. 10(!4> ;!,*.!6* &41 <5 A!;; 0. .2* 7(!4-!7;* /, &(!3./F -(&.!-* *:0&;!.5;/4> -/4.!40*1 !4 ,/(6 &41 /4;5 .2/3* A2* 1!1 4/. ,0;,!;* .2* -/41!.!/43 &..&-2*1 ./ .2* *:0&;!.5 /, (!>2.3 /(A2/ 1!1 4/. /<*5 .2* !4K04-.!/43 /, 5-0(>03 &3 ./ .2* *10-&.!/4 /, .2* 5/!6> &41 &3 ./ .2* ;!,* /, &10; -!.!Q*43 /(A2/ 1!1 4/. -/4.(!<0.* ./ .2* -/6 6/4 6*&;3 30,,*(*1 &1!6!40.!/4 /, .2*!(7/;!.!-&; (!>2.3 2!3 !4=/;=*1 *0-;03!/4 ,(/6 .2* >/=*(46*4. &41 &16!4!3.(&.!/4 /, .2* .&.* &3 A*;;* &3 ,(/6 .2* (!>2. /, *;*-.!4> /(<*!4> *;*-.*1 ./ /,,!-* <0. .2* 704!326*4. &,,*-.*1 .2* !41!=!10&; /4;5 &41 1!1 4/. 1*3-*41 ./ 2!3 -2!;1(*4 4/(1!1 !. ./0-2 2!3 7/3!.!/4 !4 7*(3/4&;;&A
7*3 2* /6&4 7*(3/4!,!-&.!/4 /, 2/7* *37*-!&;;5 /, 2/7* ./(&>//12&(=*3. &41 8!4 ;&.*(.!6*39 ,/(.2* <;*33!4> /, -2!;1(*4 2*(* A*(* 3*=*(&; .*67;*3 ./ !4 /6* 2* A&3 (*7(*3*4.*1 &3 &5/0.2,0;,!>0(* 6/=!4> &;/4> ;!>2.;5 !4 &; /4> (/<* A2!-2 A&3 (&!3*1 &;!..;* !4 2*(;*,. 2&41 A2!;* 2*((!>2.</(* &<01 *!.2*(-;/3*1 /(K03. &</0. ./ /7*4 4 .2* -/0(3* /, .!6* 32* -&6* ./ <* 030&;;5 -/43!1*(*1 &3 &>/11*33 /, .2* ,0.0(* !4=/D*1 &.<!(.23 &41 6&((!&>*3 &41 /4 3!6!;&(/--&F 3!/43
7233(!3.>(;06 8 (8 " -/0(. /(.2* >&6* /, <&;;!4 .2* 1: " &41 ((&3 .2* 4&6* /, .2* &(./,7;&5!4>&.<&;;&
72*4114* ,&3.*4!4> ,/(.2* 2&!(/, .2* (**D A/6*4 # /
72!40 8H .2* .2(/..;*(I9 6/43.*(</(/A*1 ,(/6 >57.!&4 (*;!>!/4 &41 356F </;!36 /(!>!4&;;5 (*7(*3*4.*1 A!.2.2*</15 /, &A!4>*1 ;!/4 &41 .2* <(*&3. &41 2*&1 /, &6&!1*4 &41 30<3*:0*7.;504 3.!;; 6/(* A/4F 1*(,0; ,/(63 8&3 & 6&!1*4 A!.2 .2* <(*&3.

S]

,**. &41 -;&A3 /, &;!/4 .2* .&!;; /, &3*(7*4. &41 .2* A!4>3 /, &<!(1 /(&3&;!/4!4 ,(/4. &41 & 206&4 <*!4> <*2!41 A!.2 =0;.0(* 3 -;&A3 &41 *&>;* 3 A!4>39 --/(1!4> ./

*3!/1 72!40 A&3 .2*1&0>2.*(/, .2*
% 2;63*(&41 (.2(03" &--/(1!4>./ /.2*(3
G/, -2!14&41B 572/4 *(&8/(&--/(1F
!4>./ /.2*(3 (*3 /(!/45303g!4 &4>*(
&. .2* -(!6*3 /, &;43 3*4. 2*(./ 2*<*3
,(/6 .2!/7!& 2* .//D 07 2*(&</1* /4
& (/-D 4*&(.2* -!.5 &41 >&=* *=*(5 7&33*(
<5 .2* A*;"D4/A4 (!11;* P 2&. &;D3
/4 ,/0(;*>3!4 .2* 6/(4!4>/4 .A/ &. 4//4
&41 /4 .2(** !4 .2* *=*4!4>#! 2* ,;04>
,(/6 .2* (/-D&;A2/ -/0;1 4/. &43A*(!.
2*4 8 1;723 *07;&!4*1 .2* (!11;* (!>2.;5
"&3 (*,*((!4>./ 6*4 !4 .2* 30--*33!=* 3.&>*3
/, !4,&4-5 .2* 7(!6* /, ;!,* &41 /;1 &>*
!32* ,;04> 2*(3*;,1/A4 ,(/6 .2* (/-D
7!44!4> F +
71;;& 2* /4!&4 .*(6 ,/(.2* &(63
.&D*4 ,(/6 &4 *4*65 1*,*&.*1 !4 3!4>;*
-/6<&. &41 &;3/ ,/(.2/3* 7/(.!/43 /, .2*
%-&7.0(*1 &(6/0(A2!-2 A*(* 7(/6!3*1 <5
.2* >*4*(&;./ 3/;1!*(3 A2/ 1!3.!<>0!32*1
.2*63*;=*3 2*5 A*(* 204> 07 !4
& .*67;* A!.2 & 1*1!-&./(5 !43-(!7F
.!/4 f *(>!; !!! @RRg /(!4 .2*
=*3.!<0;* /, .2* 2/03* A2*(* .2*5
(*6&!4*1 /=*4 !, .2* 2/03* 7&33*1
!4./ /.2*(2&413 3
A*(* .2* &(63 .&D*4 ,(/6 .2* 2/3.!;*
>*4*(&; <5 & /6&4 ;*&1*(-/6F
6&41!4> 041*(2!3 /A4 &037!-*3
&41 A*(* -/43*-(&.*1 ./ 07!.*(
(.(!03 /4 .2* &7!./; 2!3 !3
"3&!1 ./ 2&=* <**4 ,!(3. 1/4* <5
/6!!;03 A2/ !3 .2* .(&1!.!/4&;
,/041*(/, J* 3&4-.0&(5 /, *(*"
.(!03 f !=5 !$N `jg 2*5 A*(*
;*>!.!6&.*;5 A/4 /4 /4;5 .A/ 30<F
3*:0*4. /--&3!/43 f<5 0;03 /(F
4*;!03 /3303 ,(/6 .2* D!4>/, *!!
&41 <5 ;&01!03 &(-*;;03 ,(/6
.2* D!4>/, .2* 63&.&3 ;0.&(-2
Rg
.&1!06 8 (" 2*
-/0(3* ,/(,//."(&-*3 &6/4>3. .2*
(**D3" .2* 030&;;*4>.2 /, !. A&3
?NN (**D ,** & 6*&30(* A2!-2
*(&-;*3 &--/(1!4> ./ .2* 65.2
2&1 &77/!4.*1 ,/(.2* -/0(3* &.
;567!& # 5 * & @ &
,!> C g 0<3*:0*4.;5 .2!3 <*-&6*
.2*3.&41&(1 04!./(6*&30(!4> 1!3F
.&4-*3 4 </.2 /, .2*;/4>*(3!1*3
/, .2* -/0(3* A*(* 4&.0(&; /(&(.!F
,!-!&;*;*=&.!/43 A!.2 .*((&-*1 3*&.3
,/(.2* 37*-.&./(3 .' /4* *41
.2*(* A&3 >*4*(&;;5 & 3*6!-!(-0;&(
37&-* *37*-!&;;5 !4.*41*1 ,/(A(*3.;!4> &41
H.2!3 A&3 .2* 7;&-*, /(.2* 067!(*3 *&(
B2!3 A&3 .2* 7!;;&(2!-2 6&(D*1 .2* >/&;

2*3.&(.!4>"7/!4. A&3 &;3/ f3/6*.!6*3g!41!F
-&.*1 <5 & 7!;;&(&. .2* /.2*(*41 A2!-2
A&3 /(!>!4&;;5 3.(&!>2. &41 !4 ;&.*(.!6*3
-0(=*1;!D* .2* *41 4*&(.2* >/&; /(.2*
1!,,*(*4. D!41 /, (&-*3 @*&(
.23!403 (**D 7!- 7/*. #
.1.1 &.*(4 .&;!&4 >/11*33 A2/
>&=* 7(/.*-.!/4 !4 -&3*3 /, ,!(*3 &41 -/4,;&>F
(&.!/43 8 ** 1) (WT T 5 ; 13
!! @R" 32* !3 3/6*.!6*3 !1*4.!,!*1 A!.2

.&. (8;!. H & 3.&41&(1 -/!49 8$g
2* 7(!4-!7&; >/;1 -/!4 /, (**-* 2*
..!- /, >/;1 & >/;1 7!*- /, .A/
>/;1 (O @ " :*3!;=*((!
$ 3 0 !4 !4.(!43!- =&;0* /, 3!;=*(/
.2* 3&6* 3.&41&(1 /, -0((*4-5 <*;/4>*1
.2* &-*1/4!&4 >/;1 ,!(3. 3.(0-D <5
2!;!7 &41 ;*O&41*(.2* (*&. 8@g
2* 3!;=*(!3 &.*(6 &77;!*1 !4 ;&.*(
.!6*3./ .2* .2*4!&4 .*.(&1(&-26 /, ,/0(

8 O(.!43&41 &07*(,- (" 7 $ 9

3!;=*((PB @3 !4 !4.(!43!-=&;0*9
"
.&.!03 8$g " 7( )

8@9g 8, (' , " ' ' ' / 6 &4' 7/*. ' </(4' &.' &7;*3' &</0.' CV' ' !3' ,&.2*(' A2/' &,.*(A&(13' 3*..;*1' !4' / 6 * ' &41' A&3' <035' .2*(*' &3' &'.*&-2*(' A&3' 2! 6 3*^' &' 7/*. ' &41' .2*' 3/4' / A*1' 2!3' .(&!4!4>' ./' 2! 6 ' &(;5' !4' ;!,*' 2*' >&!4*1' .2*' &77(/=&;' /,' 2!3' -/4.* 6 7/(&(!*3' <5' 2!3' 7/*.!-' .&;*4.' *37*F -!&;;5' !4' ! 6 7(/=!3&.!/4' &41' 3*=*(&;' .! 6 *3' A/4' .2*' =!-./(5' !4' 7/*.!-' -/ 6 7*.!.!/43' *.' 2*' (* 6&!4*1' &;' 2!3' ;!,*' 1*7*41*4.' /4' .2*',&=/0('/,' / 6 !.!&4' &41' /,' .2*'>(*&.' 6 *4' /,' / 6 * ' A2/3*' >//1A!;;' 2*' 3/0>2.' ./' 7(/F 7!.!&.*' <5' .2*' 6 /&.' 3*(=!;*' ,;&..*(!*3' 4' ;&.*(';!,*' 2*' A*4.' <&-D' ./' &7;*3' A2*(*' 2*' 1!*1' &</0.' T?' A/' *7!-' 7/*63' /,' 2!3' &(*' 7(*3*(=*1' </.2' 1*1!-&.*1' ./' / 6 !.!&4' 8$9' .2*' + (' !4' .A*;=*' </!D3' 70<;!32*1'&,.*(' .A*;=*' 5*&(3';&</0(' !4' T@' /4' .2*' 3.(0>>;*' /,' .2*' 3/43' /,' 8 1;703',/(' 2*<*3' 7*(2&73' !4' ! 6 !.&.!/4' /,' .2*' 7/* 6 ' /,' .2*' 3& 6 *' 4& 6 *' <5' 4.! 6 ,.-203' &41' 8@9' .2*' .A/' ,!(3.' </!D3' /,' *6' !4-/ 6 7;*.*' (' *' &;3/' 2&=*' 2!3' ' &' -/;;*-.!/4' /,' /--&3!/4&;' 7/* 63' 6 /3.;5' !4' 2*0& 6 *.*(3' <0.' 7&(.;5' !4' ;5(!-&;' =*(3*' .&.!03' !3' 1!3.!4>0!32*1' & 6 /4>' 2!3' -/4.* 6 7/(&(!*3' <5' 3D!:;' &41' ! 6 &>!4&F .!/4' <0.' 30,,*(3' ,(/ 6' .2*' .*41*4-5' /,' .2*' .! 6 *' ./' 6 &D*' >(*&.' 1!37;&5' /,' ';*&(4!4>' &41' (2*./(!-&;' /(4& 6 *4.' !3' 7/* 63' A*(*' 60-2' (*&1' </.2' !4' &4.!:0!.5' &41' !4' .2*' !11;*' @

.*;*'8 -* %9' 4'07(!>2.' .&<;*.' /('3;&<' /,' 3./4*' .' .2*43' 30 2' .&<;*.3' A*(*' 3*.' 07' !4' &' 70<;!-' 7;&-*' *37*-!&;;5' /4' .2*' -(??;;3 &A3' 1*-(**3' .(*&.!*3' *.-' &3' A*;;' &3' 3*4.*4-*3' /,' 704!32 6 *4.' &>&!43.' 1*F ,&0;.*(3' A*(*' *4>(&=*1' 07/4' .2* 6 ' &41' .203' 6&1*' 70<;!-;5' D4/A4' 2*' 03*' /,' ',/(' ,04*(&;' 6 /40F 6*4.3' .=&3' -/ 6 6/4' !4' &;;' (**D' -/04.(!*3' 4' *&(;!*(' .! 6 *3' .2*5' &(*' 4&((/A' &41' .2!4' 3;&<3' /,' 3./4*' 3;!>2.;5' .&7*(!4>' ./A&(13' .2*' ./7' A2!-2' !3' -(/A4*1' *!.2*(' A!.2' " '81*-/(&.!/43' /,' ,;/A*(3' &41' ;*&=*3' ' -0.9' /(' A!.2' &' 36&;;' .(!&4>0;&(' 7*1!6*4.' /(4&F 6*4.*1' A!.2' (/3*..*3' 2*' 4 ^' 32/(.*(' <0.' <(/&1*(' ' -(/A4*1' A!.2' &' 7*1!6*4.9' !3' ;&.*(' .2&4' .2*' /.2*(' D!41 &45' 30-2' ' (*3*6<;*' 36&;' 32(!4*3' /(' -2&7*;3' f *((5 3' 6 ' ,!>' $@$g' *3!1*3' .2*' !43-(!7F .!/4' (*,*((!4>' ./' .2*' 1*&1' .2*5' /,.*4' <*&(' (*7(*3*4.&.!/43' /,' .2*6' !4' (*;!*,' &3' !4' .2*' ,&6/03' 6/406*4.' ./' *0;; 3' ' ' TN' 4*&(' .2*' ;7'B;06' &.' .2*43' f /(' &' :' 6/(*' .2&4' &' -*4.0(5'*&(;!*(' A!.2' &' A&((!/(" !4' ;/A' (*;!*,' ' / W .*4./(' 4*' /,' .2*' (**D3'<*,/(*' (/5' A2/' -/0;1' 32/0.' &3' ;/01;5' &3' ,!,.5' 6*4' ./>*.2*(' W'' ' URVg' *' !3' 3&!1' ./' 2&=*' <**4' &' 2(&-!&4' /(' (-&1!&,!' &41' ./' 2&=*' ,/041' 2!3' 1*&.2' !4' &' -/4.*3.' /,' 32/0.!4>W A!.2' *(6*3 .*72 4,!3' &6 ' 2*' >&(;&41' & 2' " '&;3/' &' 6*.&;'<6!1',/(' .2*',/(*2*&1' ;!D*' &' 1!&1*6' & ' / ' ' 0 ' =' F .,!72,!403' 8$9' f ' 3-0;7./(' /,' .2*' &(-2&" !3.!/' 3-2//;' /,' &3,. ;*3' 8&' -/4.* 6 7/(&(5' /,' / 6 7*59' !3' 4& 6 *' &77*&(3' /4' &' A*;;" D4/A4' 3.&.0*' /,' &' 401*' 5/0.2' !4' .2*' = " ' A2!-2' !3' (*7*&.*1' A!.2' =*(5' 3;!>2.' &;.*(&.!/4' !4' &' 6&;*' 3.&.0*' ,/(6!4>' 7&(.' /,' &' >(/07' !4' .2*' &7;*3' 03*06' 6/4>" 2!3' 707!;3' A&3' .2*' 3-0;7./(' 4 ;&03' & !" ',!>' $?9g' f ' ' W 8@9' ' :Q " ' 0.2/(' /,' &' -/ 6 7(*F 2*43!=*' >*/>(&72!-&;' A/(D' &</0.' VNN' : ' /(!>!4&;;5'%-/43!3.!4>' /,' 6/(*' .2&4' ,!,.5' </XB' !4' .2*',/(6' /,' &' ;*0!-/4' -/ 6 7!;*1' /0.' /,' 6/(*' .2&4' $NN' &0.2/(3' A2!-2' &;3/' -/4.&!4*1'4/.!-*3' /,' 65.23'2!3./(5'*.-' A!.2' -/43.&4.' !41!-&.!/4' /,' &0.2/(!.!*3' *3!1*3" ,(&>6*4.3' /,' .2*' /(!>!4&;' A*' 7/33*33' /4;5" &' 6*&>(*'*7!./6*' <5' &' >(& 6 &(!&4' 4& 6 *1W *(6 ;&03" <0.'*=*4'!4' .2!3' 60.!;&.*1',/(6' !.' !3' /,'>(*&.'=&;0* .?(?7*' 4*' /,' .2*' .*!&13' 6/.2*(' /,' 8 416 !!3'<5' (,!3 .?(?7*3' 4*' /,' .2*' B-; 7 3' & .*3,-2,!(03' 2*' 6/3.',& 6/03' (*7(*3*4F .&.!=*' /,' .2*'*&(;!*(' /(!&4' ;5(!-&;' 7/*.!"5' &.' ;(4 (&' !4' !-!;5' &</0.' ? N' (' (!F >!4&;;5'-&;;*1' + ' 2*' (*-*!=*1' .2*' 4& 6 *' /,' .*3!-2/(03' 8H 6&(32&;' /,' -2/(03*3!9' 7/33!<;5' ,(/6' 2!3' /,! -*' /,' 1!(*-.!4>' .2*' -2/(03*3' &41' 307*(!4.*41!4>' .2*!(' 7(&-.!-*' .' !3' (*;&.*1' .2&.' 2*' A&3' 3.(0-D' <;!41',/(' &' ;& 67//4' /4' *;*4' &3' .2*' -&03*' /,' .2*' (/K&4' &(' <0.' (*-*!=*1' 2!3' *5*3!>2.' &>&!4' A2*4' 2*' -/ 6 7/3*1' &' ;5(!-&;' 7/* 6' (*-&4.!4>' .2*' ,!(3.' &41' -&;;*1' " ' f ;&./',('@CR;g' *'1!*1' &>*1'*!>2.5" ' ,!=*' &.' &.*4&' A2*(*' 2*' 2&1' &' ./ 6<' !4',(/4,(" /,' .2*' >&.*' 4& 6 *1' &,.*(' 2!6' 2*' -2/(&;' /1*' 2&1' <**4' 1!=!1*1' <5' ;-!4&4' !4.*(' &41' " (.*3!-2/(03' !3' 3&!1' ./' 2&=*' -/ 6 7;*.*1'!.3',/(6' <5'&11!4>' .2*' 8*7/1*9' A2!-2' A&3' 304>' <5' .2*

-2/(03 &3 .2*5 (*6&!4*1 3.&.!/4&(5 &,.*(.2* -/67;*.!/4 /, .2* .A/7(*-*1!4> 6/=*F 6*4.3 *! 3 (*>&(1*1 &3 .2* ,/041*(/, .2* ;/,.!*(3.5;* /, ;5(!- 7/*.(5 !3 ,*3.&;* 3/4>3 &,.*(A&(13 1!=!1*1 !4./ .A*4.5"3!0< //D3 A*(* -2!*,;5 /4 65.2/;/>!-&; .2*6*3 *37*-!&;;5 .2* 65.23 /, 2*<*3 &41 (/5 !4 3!67;* 6*.(!-&; ,/(63 -;/3*;5 &;;!*1 ./ *7!- =*(3* &41 !4 &4 *7!- 1!&;*-. A2!-2 -/4.&!43 &, *A /(!- !1!/63 !3 37;*41!1 7/A*(/, *07(*33!/4 (*-*!=*1 .2* 2!>2*3. 7(&!3 ,(/6 .2* &4-!*4.3" 2* A&3 -&;;*1 .2* /6*(/, ;5(!- 7/*.3 f-7 S0!4.!;!&4] $?@g &41 !. 03*1 ./ <* 3&!1 .2&. /6*(3 3/0; 2&1 7&33*1 !4./ 2!6 " (2 1 , " =!! UVg *! /4;5 7/33*33 ,(&>6*4.3 /, 2!3 7/*.(5 .2 4 ;03 8$9 !/4 /, *(3*03 &41 41(/6*1& &41 ,&.2*(/, 0(53.2*03 &$ & * 8@9 /4 /, ,.7J4*03 &41 0&14* & * .//D 7&(. !4 .2* *07*1!.!/4 /, .2* 7 > 4! &>&!43. 2*<*3 &41 !4 .2* (/K&4 &(A2*(* 2* ,/0>2. &3 .2* <(&=/ -/6F (&1* &41 -2&(!/.**(/, ! 6*1*3 .2 4/ 4* /, .2* /(>/43 & .2&41</*& .!;03 fA(/4>;5 37*;. : [4 !(/4 !43.(06*4. 7/!4.*1 &. /4* *41 &41 ,;&. &. .2* /.2*(,(A(!.!4> /4 .&<;*.3 -/=*(*1 A!.2 &. .2!4 -/&.!4> /, A&0 & ; ! * 0 .;7*41!46 2* /6&4 6!;!.&(5 7&5 (!>!4&;;5 .2* .(!<* 2&1 ./ -/4.(!<0.* .2* 4*-*33&(5 6*&43 ./ 7(/=!1* ,/(!.3 -/4.!4F >*4. .A&3 /4;5 &. .2* <*>!44!4> /, .2* A&(&>&!43. *!! !4 CNC .2&. 7&56*4. /, &3 306 <5 .2* .&.* A&3 !4.(/10-*1 2!3 A&3 >!=*4 ./ .2* 3/;1!*(3 *!.2*(<*,/(* /(&,.*(.2* -&67&!>4 &3 -/67*43&.!/4 ,/(.2* -/3.3 /, .2*!(;!=!4> 10(!4> !.3 -/4.!40&4-* 2*4 .2!3 2&1 >(&10&;;5 <*-/6* &(*>0;&(7&56*4. !. <*-&6* -03F ./6&(5 !4 6&D!4> !. ./ 1*10-. *=*(5.2!4> A2!-2 .2* .&.* 7(/=!1*1 ,/(.2* &(65 !4 .2* A&5 /, -;/.2!4> &(63 &41 ,//1 <0. 041*(.2* 67!(* 6&!4.*4&4-* A&3 >!=*4 ,(** 4 .2* .!6* /, 1;5<;03 .2* 7&5 /, ;*>!/4&(!*3 A&3 $@N " 8EC C3 9 /, -*4.0(!/43 .A!-* &41 /, D4!>2.3 .2(**.!6*3 .2&. &6/04. 3*3&(!4-(*&3*1 !. ./ @@V " 8EU $U3 9 ,/(&;*>!/4&(5 /6!.!&4 ./ NN 8E$N 8N3 9 2* 7!B./(!&43 (*-*!=*1 041*(!<*(!03 U@N " 8E@V ?3 9 " !3 &;3/ .2* 4&6* /, .2* ,!0*1 4/(6&; .&0 !67/3*1 /4 -/4:0*(*1 7(/=!4-*3 A2!-2 6!>2. -/43!3. /, 6/4*5 /(7(/10-* /(</.2 0(!4> .2* *70<;!- A2*4 &-/04.(5 A&3 -/4:0*(*1 .2!3 A&3 030&;;5 ,!0*1 &--/(1!4> &6/04. /, .2* *0!3.!4> .&0*3 &41 .2* -/04.(5 1!=!1*1 !4./ ,!3-&; 1!3.(!-.3 &41 .2* /,! -!&;3 /, .2* -2!*,7;&-*3 !4 *&-2 -/67*;;*1 ./ 7&5 !4 .2* 7/(.!/4A2!-2 *;;/ ./ .2*6 41*(0>03.03 .2* .&0*3 A*(* ,/(.2* ,!(3. .!6* ,!0*1 07/4 .2* <&3!3 /, & 6*&30(*6*4. /, .2* >(/041 /--07!*1 &41 /, & -/670.&.!/4 /, 7(/7*(.5 & " 2* " A&3 *!.2*(& >(/041".&0 & /(& 7*(3/4&; .&0 & A2!-2 A&3 7&(.;5 & 7/;"..&0 7&(.;5 & 7(/7*(.5".&0 7&(.;5 & .&0 /4 .2* .(&1* -&((!*1 /4 <5 .2* !41!=!10&; 4 *0-*7.!/4&; -&3*3 37*-!&; .&0*3 A*(* &;3/ !67/3*1 2/3* </041 ./ 7&5 .2* "R A*(* -&;;*1 " .?& 2* (**D .*(6 ,/(& -/;/44&1* 30-2 &3 .2/3* <0!;. /0.3!1* /(!43!1* .*67;*3 &(/041 1A*;;!4>"2/03*3 >5 64&3!& &41 6&(D*."7;&-*3 2*5 A*(* &;3/ 3*.07 3*7&F (&.*;5"&3 /(4&6*4.3 /, .2* 3.(**.3 &41 /7*4 7;&-*3 2* 3!67;*3.3 ,/(6 !3 .2&. /, & (//,*1 -/;/44&1* A!.2 & A&;; /4 /4* 3!1* A2!-2 A&3 /,.*4 1*-/(&.*1 A!.2 7&!4.F !4>3 203 !4 .2* 6&(D*."7;&-* &. .2*43 .2* 8.2* &!4.*1 /;/44&1* A&3 1*-/(&.*1 A!.2 ;5>4/.03 (*7(*3*4.& .!/43 /, .2* 1*3.(0-.!/4 /, (/5 .2* ,!>2. /, .2* .2*4!&43 A!.2 .2* 6&Q/43 &41 .2* <&..;*3 /, (.2?4 &41 8 4/* 2* &;3/ !4 .2* 6&(D*."7;&-* !4 A2!-2 .2* ("' ! 3&. &3 K01>* A&3 7(/<&<;5 1!=!1*1 ;/4>!.01!4&;;5 !4./ .2(** 7&(.3 <5 .A/ (/A3 /, -/;06 43 &41 A&3 .2* 7&..*(4 ,/(.2* /6&4 & [L*4/ /, !.!06 .&0>2. !4 .2* &41 2!3 &12*(*4.3 &--/(1!4>;5 /<F .&!4*1 .2* 4&6* /, 6/4> .2* /6&43 3!6!;&(-/;/44&1*3 &..&-2*1 ./ .2*(<0!;1!4>3 /(<0!;. /0. !4 .2* /7*4 A*(* -&;;*1 2*5 A*(* 4&6*1 ,(/6 .2* 4*!>2</0(!4> *1!,!-*3 8* > $ " -;/3*; ./ .2* .*67;* /, /4-/(19 ,/6 .2*!(<0!;1*(3 8* > 2 , &;3/ ,/6 .2* 7!-.0(*3 3*. 07 !4 .2*6 8* > 1 " 9 &41 ,/6 .2* <03!4*33 -2!*,;5 -&(!*1 /4 !4 .2*6 &3 1 " .2* 2&;; / .2* 6/4*5"-2&4>*(3 2*3* 2&;;3 A*(* .2* -2!*, 7;&-*3 ,/(70<;!- !4.*(-/0(3* &6/4> .2* (**D3 &41 /6&43 .1<603 & "" , ./<! !4 &-*F 1/4!& </0. VNN 2* -/67/3*1 ,/(.2* *10-&.!/4 /, 2!3 3/4 *7.;6!03 & 72!;/F 3/72!-&; &4.2/;/>5 !4 ,/0(</D3 ,/6 .2* *0.(&-.3 A2!-2 2* 2&1 6&1* !4 .2* -/0(3* /, 2!3 *0.*43!=* (*&1!4> ,/6 6/(* .2&4 VNN (**D 7/*.3 &41 7(/3* A(!.*(3 .!3 /, >(*&. =&;0* &3 !. !4-;01*3 406*(/03

,(&>6*4.3ᶦ /,ᶦ A/(D3ᶦ 4/Aᶦ ;/3.ᶦ &41ᶦ !3ᶦ 7&(.!F -0;&(;5ᶦ (!-2ᶦ !4ᶦ :0/.&.!/43ᶦ ,(/6ᶦ .!*ᶦ A/(3ᶦ /,ᶦ .2*ᶦ (**Dᶦ 1(&6&.!3.3

2*ᶦ -/;;*-.!/4ᶦ A2!-2ᶦ /(!>!4&;;5ᶦ 3**6 ᶦ./ᶦ 2&=*ᶦ ,/(6*1ᶦ /4*ᶦ A2/;*ᶦ A/(Dᶦ 2&3ᶦ <**4ᶦ 3*7&(&.*1ᶦ !4./ᶦ .A/ᶦ 1!3.!4-.ᶦ 7/(.!/43ᶦ !4ᶦ .2*ᶦ -/0(3*ᶦ/,ᶦ .!6*ᶦ 8$9ᶦ 2*ᶦ Hᶦ 7253!-&;ᶦ 1!&;*-F .!-&;ᶦ &41ᶦ *.2!-&;ᶦ *-;/>0*3ᶦ Iᶦ 8/(ᶦ 3*;*-.!/43ᶦ !4ᶦ .Aᶦ <//D3ᶦ 8!67*(,*-.ᶦ &.ᶦ .2*ᶦ <*>!44!4>ᶦ &41ᶦ *419ᶦ &41ᶦ 8@9ᶦ .2*ᶦ A !1 ᶦ&;3/ᶦ !4ᶦ .Aᶦ <//D3ᶦ /4ᶦ *.2!-&;ᶦ &41ᶦ 7/;!.!-&;ᶦ 30<ᛕ*-.3ᶦ .2*ᶦ 3*-.!/43ᶦ /,ᶦ A2!-2ᶦ &(*ᶦ !4ᶦ >(*&.ᶦ 7&(.ᶦ 3/ᶦ &((&4>*1ᶦ .2&.ᶦ *&-2ᶦ =!(.0*ᶦ !3ᶦ .(*&.*1ᶦ !4ᶦ -/44*0!/4ᶦ A!.2ᶦ !.3ᶦ /77/3!.*ᶦ =!-*

./!-3ᶦ 2*ᶦ &12*(*4.3ᶦ /,ᶦ &ᶦ 3-2//;ᶦ /,ᶦ 72!;/3/725ᶦ # ᶦ,/041*1ᶦ <5ᶦ *41ᶦ /,ᶦ !.!06ᶦ &</0.ᶦ $Nᶦ ᶦ 2*5ᶦ 1*(!=*1ᶦ .2*!(ᶦ 4&6*ᶦ ,(/6ᶦ .2*ᶦ &!4.*1ᶦ .?&ᶦ # ᶦ $ ᶦ !4ᶦ .2*43ᶦ !4ᶦ A2!-2ᶦ L*4/ᶦ ;*-.0(*1ᶦ /(ᶦ ,0(.2*(ᶦ 1*.&!;3ᶦ ᶦ *

.;&ᶦ 2*ᶦ /0.*(ᶦ >&(6*4.ᶦ A/(4ᶦ <5ᶦ /6&4ᶦ 6&.(/43ᶦ &</=*ᶦ .2*ᶦ " ᶦ " ᶦ ᶦ -2*6!3*ᶦ .ᶦ A&3ᶦ ;/4>*(ᶦ .2&4ᶦ .2*ᶦ </15ᶦ 3;!.ᶦ /7*4ᶦ &.ᶦ .2*ᶦ ./7ᶦ /4ᶦ *!.2*(ᶦ 3!1*ᶦ &41ᶦ ,&3.*4*1ᶦ ./>*.2*(ᶦ <5ᶦ -;&373ᶦ A2!;*ᶦ <*;/Aᶦ !.ᶦ A&3ᶦ 7(/=!1*1ᶦ A!.2ᶦ &</(1*(ᶦ # " M ᶦ A/=*4ᶦ /4ᶦ ./ᶦ !.ᶦ &41ᶦ A&3ᶦ >&.2*(*1ᶦ 07ᶦ <*;/Aᶦ .2*ᶦ <(*&3.ᶦ <5ᶦ &ᶦ >!(1;*ᶦ 3/ᶦ &3ᶦ ./ᶦ ,/(6ᶦ <(/&1ᶦ ,&;;!4>ᶦ ,/;13ᶦ # 1 ᶦ .ᶦ 2&1ᶦ *!.2*(ᶦ 4/ᶦ 3;**=*3ᶦ (ᶦ 2&;,"3;**=*3ᶦ &--/(1!4>ᶦ &3ᶦ .2*ᶦ 041*(ᶦ .04!-ᶦ 2&1ᶦ /(ᶦ 2&1ᶦ 4/.ᶦ 2&;,"3;**=*3ᶦ /(ᶦ .2*ᶦ >&(<ᶦ /,ᶦ A/6*4ᶦ 046&((!*1ᶦ /(ᶦ !4ᶦ 1!3>(&-*ᶦ ᶦ ᶦ 41*(ᶦ .2*ᶦ 67!(*ᶦ .2*ᶦ ᶦ ,*;;ᶦ >(&10&;;5ᶦ /0.ᶦ /,ᶦ 03*ᶦ ,.*(ᶦ .2*ᶦ C.2ᶦ -*4.0(5ᶦ ᶦ .2*(*ᶦ &77*&(3ᶦ !4ᶦ !.3ᶦ 3.*&1ᶦ .2*ᶦ ᶦ A/(4ᶦ <5ᶦ 6*4ᶦ &41ᶦ A/6*4ᶦ &ᶦ D!41ᶦ /,ᶦ .04!-ᶦ A!.2ᶦ 3;**=*3

.(&</ᶦ 8 (ᶦ " ᶦ 2*ᶦ (**Dᶦ >*/F >(&72*(ᶦ *ᶦ A&3ᶦ </(4ᶦ /,ᶦ &ᶦ >//1ᶦ,&6!;5ᶦ &.ᶦ 6J3*!&ᶦ !4ᶦ /4.03ᶦ &</0.ᶦ ? ᶦ ᶦ ᶦ ,.*(ᶦ .2*ᶦ -/4-;03!/4ᶦ /,ᶦ 2!3ᶦ *10-&.!/4ᶦ !4ᶦ 72!;/3/725ᶦ 2*ᶦ 1*=/.*1ᶦ 2!63*;ᶦ ./ᶦ 2!3./(!-&;ᶦ &41ᶦ >*/B&72!'ᶦ -&;ᶦ 3.01!*3ᶦ &41ᶦ 041*(./!/Dᶦ;/4>ᶦ ᛕ/0(4*53ᶦ !4ᶦ 3!&ᶦ !4/(ᶦ &;3/ᶦ !4ᶦ >57.ᶦ 07ᶦ ./ᶦ .2*ᶦ </04F 1&(!*3ᶦ /,ᶦ .2!/7!&ᶦ &41ᶦ !4ᶦ 7&(.3ᶦ /,ᶦ (**-*ᶦ &41ᶦ .&;5ᶦ 7&5!4>ᶦ 3*=*(&;ᶦ =!3!.3ᶦ ./ᶦ /6*ᶦ *ᶦ -/67/3*1ᶦ &ᶦ >(*&.ᶦ 2!3./(!-ᶦ A/(Dᶦ !4ᶦ ,/(.5'ᶦ 3*=*4ᶦ</!/D3ᶦA2!-2ᶦ,(/6ᶦ.2*ᶦ,!,.2ᶦ</!/Dᶦ/4A&(13ᶦ ,/(6*1ᶦ&ᶦ-/4.!40&.!/4ᶦ /,ᶦ 1;5<;03ᶦ1/A4ᶦ./ᶦ 2!3ᶦ /A4ᶦ .!6*ᶦ <0.ᶦ /,ᶦ .2!3ᶦ /4;5ᶦ &ᶦ ,*Aᶦ ,(&>F 6*4.3ᶦ(*6&!4

!3ᶦ 6 1 ᶦ 2/A*=*(ᶦ A*ᶦ 7/33*33ᶦ -/67;*.*ᶦ !4ᶦ 3*=*4.**4ᶦ </!/D3ᶦ A!.2ᶦ .2*ᶦ *OF -*7.!/4ᶦ /,ᶦ &ᶦ ,*Aᶦ >&73ᶦ !4ᶦ .2*ᶦ 3*=*4.2ᶦ </!/Dᶦ 2!3ᶦ A&3ᶦ,!4!32*1ᶦ &</0.ᶦ ᶦ @ ᶦ .ᶦ !3ᶦ .2*ᶦ 7(!4-!7&;ᶦ >*/>(&72!-&;ᶦ A/(Dᶦ .2&.ᶦ 2&3ᶦ -/6*ᶦ 1/A4ᶦ./ᶦ 03ᶦ,(/6ᶦ&4-!*4.ᶦ.!6*3ᶦ .ᶦ -/43!3.3ᶦ /,ᶦ 1*3-(!7.!/43ᶦ /,ᶦ -/04.(!*3ᶦ &41ᶦ 7*/7;*3ᶦ &41ᶦ !3ᶦ 37*-!&;;5ᶦ =&;0&<;*ᶦ /4ᶦ &--/04.ᶦ/,ᶦ .2*

*0.*4.ᶦ&41ᶦ!67/(.&4-*ᶦ/,ᶦ.2*ᶦ2!3./(!-&;ᶦ&41ᶦ ./7/>(&72!-&;ᶦ 6&..*(ᶦ !.ᶦ -/4.&!43ᶦ 7&(.;5ᶦ 1*(!=*1ᶦ ,(/6ᶦ 7*(3/4&;ᶦ /<3*(=&.!/4ᶦ <0.ᶦ -2!*,;5ᶦ1(&A4ᶦ,(/6ᶦ.2*ᶦ<*3.ᶦ&0.2/(!.!*3ᶦ7&(F .!-0;&(;5ᶦ,(/6ᶦ,!(./3.2*4*3ᶦ 2*ᶦ,!(3.ᶦA/ᶦ </!/D3ᶦ-/4.&!4ᶦ8$9ᶦ&ᶦ-(!.!-!36ᶦ4/.ᶦ&;A&53ᛕ03.ᶦ /,ᶦ .2*ᶦ 6/(*ᶦ &4-!*4.ᶦ>*/>(&72*(3ᶦ,(/6ᶦ.2*ᶦ .!6*ᶦ/,ᶦ /6*("ᶦ &41ᶦ 8@9ᶦ .2*ᶦ 6&.2*6&.!-&;ᶦ 7&(.ᶦ /,ᶦ 7253!-Bᶦ >*/>(&725ᶦ .2*ᶦ A*&D*3.ᶦ 7/(.!/4ᶦ /,ᶦ .2*ᶦ A/(D"ᶦ </!/D3ᶦ !!!"0ᶦ 1*3-(!<*ᶦ 0(/7*ᶦ8!!!ᶦ 7&!4ᶦ!=ᶦ &0;ᶦ (!.&!4ᶦ (*;&41ᶦ &41ᶦ .2*ᶦ ;73ᶦ=ᶦ&41ᶦ=!ᶦ .&;5ᶦ=!!ᶦ.2*ᶦ 4/(.2ᶦ &41ᶦ *&3./,ᶦ 0(/7*ᶦ./ᶦ.2*ᶦ &40<*ᶦ=!!!"0ᶦ (**-*9ᶦ 0!"0=!ᶦ 3!&ᶦ 0=!!ᶦ ,(!-&ᶦ .(&</ᶦ >!=*3ᶦ 1*.&!;*1ᶦ &--/04.3ᶦ /,ᶦ 6&44*(3ᶦ &41ᶦ -03./63ᶦ2!3./(5ᶦ&41ᶦ-/43.!.0.!/43ᶦA2*(*&3ᶦ !4ᶦ./7/>(&725ᶦ2*ᶦ>*4*(&B'>!=*3ᶦ/4;5ᶦA2&.ᶦ !3ᶦ /,ᶦ 6/3.ᶦ!67/(.&4-*ᶦ !3ᶦ 3.5;*ᶦ !3ᶦ -;*&(ᶦ &41ᶦ &..(&-.!=*ᶦ /.A!.23.&41!4>ᶦ &ᶦ >(*&.ᶦ *0.*43!/4ᶦ /,ᶦ >*/>(&72!-&;ᶦ D4/A;*1>*ᶦ .2*ᶦ A/(D'A&3ᶦ4/.ᶦ307*(3*1*1ᶦ<5ᶦ&45';&.*(ᶦ/4*ᶦ &41ᶦ!41**1ᶦ*=*4ᶦ!4ᶦ.2*ᶦ !11;*ᶦ >*3ᶦ A&3ᶦ 3.!;;ᶦ 03*1ᶦ!4ᶦ3*;*-.!/43ᶦ &3ᶦ &ᶦ 3-2//;</!/Dᶦ!4ᶦ /43.&4.!4/7;*'fᶦ **ᶦ /Q*(3 *,*-,(/43$RT ᶦ .(2.B3ᶦ#6 ᶦ ᶦ>*4*(&;ᶦ 6/4>ᶦ.2*ᶦ !2 " " ᶦ!.ᶦA&3ᶦ&37*-!&;ᶦ1*3!>4&.!/4ᶦ /,ᶦ;*&1*(3ᶦ /,ᶦ.2/3*ᶦ&(6!*3ᶦA2!-2ᶦA*(*ᶦ4/.ᶦ -/66&41*1ᶦ<5ᶦ.2*ᶦD!4>3ᶦ 2*5ᶦA*(*ᶦ&7F 7/!4.*1ᶦ<5ᶦ.2*ᶦ70<;!-ᶦ&33*6<;5ᶦ/(ᶦ<5ᶦ.2*ᶦ *72/(3ᶦ-/66!33!/4*1ᶦ.2*(*<5ᶦ .ᶦ .2*43ᶦ .2*(*ᶦA&3ᶦ&440&;;5ᶦ*;*-.*1ᶦ<5ᶦ32/A'/,ᶦ2&413ᶦ # ("Mᶦ!4ᶦ.2*ᶦ70<;!-ᶦ&33*6<;5ᶦ&ᶦ</&(1ᶦ /,ᶦ + "ᶦ 6 " ᶦA2/ᶦ2&1ᶦ.2*ᶦ307*(!4.*4F 1*4-*ᶦ /,ᶦ &;;ᶦ 6!;!.&(5ᶦ &,,&!(3ᶦ 4;5ᶦ.2/3*ᶦ A*(*ᶦ *;*-.*1ᶦ./ᶦ.2!3ᶦ 2!>2ᶦ &41ᶦ !4,;0*4.!&;ᶦ /,,!-*ᶦ A2/ᶦA*(*ᶦ;&A,0;;5ᶦ6&((!*1ᶦ&41ᶦA2/ᶦ 7/33*33*1ᶦ ;&41*1ᶦ 7(/7*(.5'ᶦ !4ᶦ ..!-&ᶦ 4ᶦ *&(;!*(ᶦ.!6*3ᶦ.2*5ᶦ307*(!4.*41*1ᶦ/7*(&.!/43ᶦ </.2ᶦ <5ᶦ ;&41ᶦ &41ᶦ 3*&ᶦ &41ᶦ &3306*1ᶦ .2*ᶦ &-.0&;ᶦ-/66&41ᶦ!4ᶦ.0(4ᶦ/4ᶦ30--*33!=*ᶦ1&53ᶦ A2!;*ᶦ.2*5ᶦ2*;1ᶦ&ᶦ-/04-!;ᶦ/,ᶦA&(ᶦ!4ᶦ-/66/4ᶦ 4ᶦ;&.*(ᶦ.!6*3ᶦ4/ᶦ 6/(*ᶦA*(*ᶦ3*4.ᶦ./ᶦ .2*ᶦ 3*&.ᶦ/,ᶦA&(ᶦ.2&!;ᶦA*(*ᶦ1**6*1ᶦ30,,!-!*4.ᶦ,/(ᶦ .2*ᶦ70(7/3*"ᶦ&41ᶦ,(/6ᶦ.2*ᶦ.!6*ᶦA2*4ᶦ.2*ᶦ .2*4!&43ᶦ-&((!*1ᶦ/4ᶦ.2*!(ᶦA&(3ᶦ6&!4;5ᶦ<5ᶦ 6*&43ᶦ/,ᶦ 6*(-*4&(!*3ᶦ3/;1!*(3ᶦ/,ᶦ *07*(!F *4-*'A2/ᶦ1!1ᶦ4/.ᶦ<*;/4>ᶦ./ᶦ.2*ᶦ</&(1ᶦA*(*ᶦ 4/.ᶦ04,(*:0*4.;5ᶦ*4.(03.*1ᶦA!.2ᶦ.2*ᶦ-/6F 6&41ᶦ&41ᶦA*(*ᶦ-&;;*1ᶦ 1ᶦ10(!4>ᶦ.2*ᶦ -/4.!40&4-*ᶦ/,ᶦ.2*ᶦA&(ᶦ 2/3*ᶦ 1ᶦ A2/ᶦ(*6&!4*1ᶦ&.ᶦ2/6*ᶦ<*3!1*3ᶦ3**!4>ᶦ.2&.ᶦ .2*ᶦ -/04.(5ᶦA&3ᶦ7(/.*-.*1ᶦ &>&!43.ᶦ2/3.!;*ᶦ !4=&3!/4ᶦ2&1ᶦ.2>ᶦ-/4.(/;ᶦ/,ᶦ.2*ᶦA&("&0*3ᶦ &41ᶦ.2*ᶦ .2*ᶦ3*;*-.!/4ᶦ&41ᶦ*:0!7F 6*4.ᶦ/,ᶦ.2*ᶦ.(//73ᶦ&41ᶦ.2*ᶦᛕ0(!31!-.!/4ᶦ &,;*-.!4>ᶦ&;;ᶦ.2*ᶦ;& "30!.3ᶦ-/44*-.*1ᶦA!.2ᶦ .2*ᶦ A&(".&0*3ᶦ&41ᶦ.(!*(&(-25ᶦ&3ᶦA*;;ᶦ&3ᶦ &;;ᶦ.2*ᶦ6!;!.&(5ᶦ/,,*4-*3ᶦA2!-2ᶦ2&1ᶦ4/.ᶦ<**4ᶦ 704!32*1ᶦ<5ᶦ.2*ᶦ>*4*(&;ᶦ&.ᶦ.2*ᶦ3*&.ᶦ/,ᶦ A&(

2*!(' -2&62*(' /,' /,,!-*' A&3' -&;;*1' .2*'
1 " ' &41' 2*(*' .2*5' 1!4*1' ./>*.2*(' &.' .2*' *07*43*' /,' .2?' .&.*' f 2*' /,,!-*' /,'
1 ' A&3' 4/.' -(*&.*1' <5' ;;3.2?4*3' <0.' A&3' &.' ;*&3.' &Z /;1' &3' .2*' .!6*' /,'
(-/4'8 (!3./.;*' $ " "' ' (" '
C9' 4'.2*'C.2'-*4.0(5' *',!41'.2*' 1'
4/' ;/4>*(' *;*-.*1' ,,!44' *&-2' /,' .2*' .*4'
: '<&.',(/6'.2*'A2/;*'</15'/,'-!.!Q*43'
A!.2/0.'1!3.!4-.!/4',' (: '& '?$9h
2*' 2!>2*3.' /,,!-*(' /,' .2*') ./;!&4' &41'
.2*' -2&*&4' ;*&>0*' 2/' A&3' 4/.' /4;5' &
-/66&41*(' /,' .2*' ,*1*(&;' &(65' <0.' &;3/'
7(*3!1*4.' /,' .2*' -/04-!;' &41' &33*6<;!*3' /,'
.2*' ;*&>0*' &;3/'</(*' .2*' .!.;*' /,' 1
.(*4&*' !,.3'A2!-2'!.' &3' -03./6&(5'
,/(' .2*' /6&43'./' 6&D*' &.' .2*' 4*A' 5*&('
A!.2'&--/67&45!4>'>//1'A!32*3' 2*'A/(1'
!3' -/44*-.*1' A!.2' .2*' 4&6*' /,' &' &<!4*'
.0.*;&(5'>/11*33' " 'A2/'-/((*37/413'
./' .2*' /6&4' &41' ,(/6' A2/3*'
7(*-!4-.' <*3!1*' .2*' = '&.' /6*'
-/43*-(&.*1' <(&4-2*3' *(*' -&(((!*1' 07' ./'
.2*' &7!./;!4*'&.'.2*'4*A'5*&(' 2*' @'
-/43!3.*1'/,' <(&4-2*3' /,' <&5'&41' /,' 7&;6'
3A**.6*&.3' 6&1*'"/,' 2/4*5' &41' ,!>3' /('
1&.*3'&3'&'>//1'/6*4'.2&.' .2*' 5*&(' 6!>2.'
<(!4>' /4;5'K/5'&41' 2&77!4*33'f =!1'A ! '
!'$RV"$TNg' 2*',(0!.3'A*(*'>!;1*1'f &(.!&;'
=!!!' $$g'&3' .2*5'&(*' 4/A'!4' *(6&45"
&41' .2*' A/(1'&3' A*;;' &3' .2*' -03./6'30(F
=!=*3' !4' .2*' (*4-2' 0 " " ' !*-*3' /,'
6/4*5' *37*-!&;;5' .2*' &4-!*4.' < ' A!.2' .2*'
!6&>*'/,' &403'A2/'A&3'37*-!&;;5'2/4/0(*1'
/4' .2!3'1&5'A*(*' &;3/'3*4.' &3' 7(*3*4.3'&3'
A*;;'&3'36&;;'&6 73'/,' .*((&-/..&'/(' <(/4Q*'
3.&67*1' A!.2' &' 6/../' &41' A!.2' 6!40.*'
(*7(*3*4.&.!/43'/,' .2*' 030&;' >!,.3' ;!*4.3'
!4' 7&(.!-0;&('A*(*' !4' .2*' 2&<!.' /,' -/67;!F
6*4.!4>' .2*!('7&.(/43'A!.2' 30-2' 7(*3*4.3'
&41' 1&(!4>'&41'&,.*(' .2*' .!6*' /,' 0>03.03'
.2*' *67*((/3'<*4*,!.*1' -/43!1*(&<;5'<5' .2!3'
-03./6'A2!-2';&3.*1' .!;' .2*',!,.2' -*4.0B'
&;.2/0>2'&</;!32*1'3*=*(&;'.!6*3'<5'37*-!&;'
1!-.'f 0./4!03' ?U'&41'T$' $ 1'C@g
.(!4>*1' 43.(06*4.3' " '
* $ &')(
.5;03' # '
.5672&;;1 3' #(' : " ("' '
--/(1!4>'./'.2*' (**D' ;*>*41' .2*3*' <!(13'
!4,*3.*1' .2*' ;&D*' .5672&;03' !4' (-&1!&'
2*5'2&1' <(&Q*4' -;&A3'<*&D3'&41' A!4>3'
&41'A*(*'&<;*'./'1!3-2&(>*'.2*!('/A4',*&.2*(3'
;!D*'&((/A3' 2*!('1*3.(0-./!4',/(6*1'/4*'
/,' .2*';&</0(3'/,' *(/;*3'8> =9
.50' 2*' *;1*3.' 1&0>2.*(' /,' -* 403'
&41' *.253'<5' &;;&3'3/4' /,' .2*' !.&4'
(!03' 2*' <*-&6*' .2*' 6/.2*(' /,' L*;03'
8Q*&;9' !D*'8=!-./(99' ^(&. 3'87/A*(9'&41
4#1'>%*'& 7*"H' "& !1%*"&(#'%*' (1$$*"&
#99 '*1$% !" ' "1%*& &)' !#*"' 1$$ "&' ((I
% '# 7' *' "&$ ' \&.% 171# %*' *"& #*1 *"&
' '&*.' '(' *"#% \&.% '&*1# &)' "&" 0"#$I
)'& ' !#*"' "#9'#' $39 .%'1)' *3@' "&'I
%&$(' /&0198&*"&7))&%% /3' !" 9'*"& 9 %*
% $&9 ' 1*"% !&'& %! ' ' "& #%' *"&
39 "' (*"& 9#7"*3' '#6&" (*"&%19&
19& >*"& *& *"' 1'* (*"& !1*&" (
0&1*.%H !"#0"($!%# ' ((#& &*"&" ! '$)'
"&)!&$$% # ' *"&)#%*1 * !&%*' ' *"&
/ ')&'% (*"& #7"*'# ' 1' " .%& %. '*&)'
/3' %#$6&'80$.9 % 1)' 6&'%"1) !&)' /3'
$ (*3' 9 . *1# %' < "& ' & (*"& 7)%
"1)' * ' *12& 1 ' 1*"' /3' *3@' '#% (&*0"&)'
% 9& (*"&'%10'&)' !1*&" # ' 1' 7 $)& '0. (
!" &6&"%! '&(1$%&$3'*"&'&/3'!1% . #%"&)'
/3' "16# 7' * ' $#& % &&0"$&%% 1)' /'&1*"$&%%
(" 1' 3&1'' 1)' E5' /1 #%" 9& *(" # &
3&1'%(' 9'*"&0 . 0#$ (**"&7)%a &%#)'
+('UUV"RN?g
0<;!>&-,!;06' 2*';!4*4'<&41&>*'A/(4'
<5'.2*' /6&4'>5643.3'A2!;3.'7*(,/(6!4>'
.2*!(' *0*(-!3*3' .' A&3'7&33*1'(/041'.2*'
A&!3.'&41'<*.A**4'.2*';*>3
0*.14!43' (&4:0!;;03' # ' 2*'
/6&4'2!3./(!&4'</6'&</0.'U?' '*'
;!=*1'10(!4>'.2*'.!6*'/,' (2K&4'&3'&4'&1=/F
-&.*'&41' .*&-2*(' /,' (2*./(!-'!4' /6*'!4'
-;/3*'!4.!6&-5'A!.2' .2*' 5/04>*(' ;!45'./'
A2/3*' !4,;0*4-*' 2*' /A*1' 6&45',&=/0(3'
41*(' &1(!&4' 2*' A&3' &77/!4.3' 7(!=&.*'
3*-(*.&(5' ./' .2*' *67*(/(" <0.' !4' $@$' 2*'
,*;;' !4./' 1!3>(&-*'&41'&77*&(3'.2*4-*,/(.2'
./' 2&=*' 1*=/.*1' 2!3' ;!,*' ./' ;*&(4*1'3.01!*3'
&41'./'=&(!*1'(*3*&(-2' *'1!*1'&</0.'.2*'
6!11;*'/,'.2*'@41'-*4.0(5' !D*' &((/'2*'
-/;;*-.*1' 4/.*3' /4' &;' D!413' /,' 30<(*-.3'
2!3./(5' ;!.*(&.0(*' &4.!:0!.!*3' 72!;/;/>5'
7253!-&;' 3-!*4-*3'&41' A/(D*1' .2*6' 07' !4'
406*(/03' A(!.!4>3' 83/6*' /,' .2*6' &77&(F
*4.;5'!4' (**D9' 6/4>3.' .2*3*' &4' *4-5"
-;/761!*'A/(D'-&;;*1',' '!4'&.' ;*&3.' .*4'
</!D3'/--07!*1'&' 7(/6!4*4.' 7/3!.!/4" &41'
K03.'&3'2*'2!63*;',(*:0*4.;5'*6/.*1' &((/'
3/'2*'!4'2!3'.0(4'A&3',(*:0*4.;5':0/.*1'<5'
;&.*('A(!.*(3' 7&(.',(/6'.!.;*3'&41',(&>F
6*4.3'.2*',/;;/A!4>'A/(D3'/,'2!3'&(*'3.!;'
!4.&-.M 8$9' 2*' ;!=*3'/,' .2*',!(3.'.A*;=*'
67(/(3'#5'= '$ @"'!4'*!>2.'</!D3'
</!D3'!"=!'.(*&.!4>'/,'74*'*67*(/('*&-2'
,(/6'&*3&('./' *(/"=!!'/,' &;<&' .2/'
!.*;;!03"=!!!'/,' *37&3!&4' !.03' &41'
/K4!.!&4' 2!3'A/(D'-/4.&!43'&4'&<04F
1&4-*'/,'6/(*'/(';*33'!67/(.&4.',&-.3'&</0."
.2*'70<;!-'&41'7(!=&.*';!,*'/,' .2*'*67*(/(3'
>(/07*1'!4'&'353.*6&.!-'6&44*('&41'*OF
7(*33*1'!4'-;*&('&41'3!67;*';&4>0&>*' 8@9'
,' 2!3';!.*(&(5'&41' 2!3./(!-&;' A/(D' 5

= ' . ? ' A2!-2' &77&(*4.;5' !4F -;01*1' .2*' /6&4'7/*.3'/(&./(3'2!3./(!&43' >(&66&(!&43'&41'(2*./(!-!&43'1/A4'./' .2*' .!6*' /,' /6!.!&4' A*' 7/33*33' .2*' ;!=*3' /,' *(*4-*' &41' /(&-*' &41' &' ,(&>6*4.' /,' .2&.' /,' 0-&4' <*3!1*3' *0.(&-.3' 6&1*' <5' .2*' >(&66&(!&4' ; 6*1*3' &41' <5' .' *(/6*',(/6'.2*' ('5 ', . ' (/6'.2*' </!2'5 ' A*'2&=*'&',(&>6*4.'/,' .2*' <!/>(&725' /,' .2*' *;1*(' ;!45' &41' .2*' >(*&.*('7&(.'/,'.2*'-2&7.*('5 6 ' (D= ' 4' .2*' <*>!44!4>' /,' .2*' (1' -*4.0(5'041*('.2*' (*!>4'/(B *0&41*(' *=*(03' 2!3' A/(D' /4' .2*' ' L' H:' ($ 'A&3' -/4.!40*1'<5' &(!03' &0!603' A2/' .(*&.*1'/,'.2*' *67*(/(3',(/6' *(=&'./ - -<-

0,,*-.03' 6&>!3.(&.*' *;*-.*1'!4' 7;&-*' /,' /4*' A2/' =&-&.*1' /,,!-*' <*,/(*' .2*"*41' /,'.2*'5*&('/('A2!-2'2*' A&3';*;*-.*1' 2*' 30<3.!.0.*'-/4.!40*1'!4'/,,!-*',/(' .2*' (*3.'/,' .2*' 5*&(' &$ '")

0!1&3 ! ' (**D' ;*0!-/>(&72*(' A2/' ;!=*1' &</0.' TUN' &41' -/67!;*1",(/6' .2*' ;*0!-/>(&72!-&;' >(&66&.!-&;' &41' *OF 7;&4&./(5' A/(D3' /,' 2!3' 7(*1*-B /(3' &' ;*0!-/4' A2!-2' -/4.&!43' *07;&4&.!/43' /,' A/(13' &41' &--/04.3' 6&!4;5' <!/>(&72!-&;' "/,'*&(;!*('A(!.*(3' 2*'A/(D'!3'70./>*.2*('2&3.!;5' &41' A!.2/0.'3D!;;' /(' 1!3-(!6!4&.!/4' .' !3' &;3/'B6&((*1' <5' 406*(/03' 6!3.&D*3' *=*(.2*;*33' !.' !3' =*(5'=&;0&<;*' /A!4>' ./' .2*' A*&;.2' /,' !4,/(6&.!/4' /4' ;!.*(&(5' 2!3F ./(5'-/4.&!4*1'!4'!.' 60-2' /,' .2!3' 4/.' <*!4>' ,/041' *;3*A2*(* 4;;&' ' 0;7;-!&' *=*(&;' /6&4'7/*.*33*3' <*&(' .2!3' 4&6*' /(' .2*',!(3.' □ 8&' 3*-/41' A2/' !3' 6*4.!/4*1'<5' &(.!&;'&</0.' .2*'.!6*' /,' /6!.!&4' A(/.*&6&./(5'7/*63' A2!-2'&(*';/3.' 7/*6' !4' 3*=*4.5' 2*0&F 6*.*(3'&41'*4.!.;*1'&' &.!(*' <*!4>' &' -/6F 7;&!4.'./'.2*' 03*',/(' .2*' *070;3!/4',' .2*' 72!;/3/72*(3',(/6' /6*' <5' /6!.!&4' 8RT' &41' T ' !3' A(!..*4' !4' 2*(' 4&6*' <0.' .2!3' 70*(!;*' 7*(,/(6&4-*' !3',' &;' .2*(' 1&.*' 2*(' 4&6*' 2&=!4>' <**4' A(/4>;5' &..&-2*1' ./'!.

0;7!-!43' 8$9' ' 7 ' /6&4'K0(!3.'</(4'&</0.'$NV' 7(6./(' !4' ?V' &41' -/430;' !4' V$' *' 3077/(.*1' " &*3&(' !4' .2*' -!=!;' A&(' &41' A&3' &77/!4.*1' <5' 2!6'7(/-/430;'<,' -2&!&' !4'C?' 2*' 1!*1' !4'C '/4' .2*'K/0(4*5'./' J.!4&' &3' &6<&3F 3&1/(' /,' .2*' *4&.*' ./' 4./!4!43' f !-*(/' ,(' !0g' ,.*(' 2*' 2&1' &<&41/4*1' 2!3' (!=&;(5'A!.2'2!3'-/4.*67/(&(5' !-*(/'!4'.2*' ,!*;1'/,'/(&./(5'2*'&77;!*1'2!63*;',./K0(!3F 7(01*4-*'&41'-/4.(!<0.*1'./'!.3'353.*6&.!- 1*=*;/76*4.' <5' 406*(/03' A(!.!4>3' W ' !-*(/',' " ' ' $V" N' &41' 5 ' ;/1 '!'$Ug 8@9' 6 " ' ' " !'/,' &(F .2&>*' '1!3.!4>0!32*1'>(&66&(!&4'/,'.2*' @41'-*4.0(5' &41'.*&-2*(' /,' 0;03' *;;!03'8> =9' !3' *0.&4.'A(!.!4>3'-/43!3.' /,' 6*.(!-&;'3066&(!*3',' .2*' -/6*1!*3',' *(*4-*'&41'/,'.2*'K 4*1!',' !(>!; 8 9' ' /,' :0!.&4!&' >&=*' 07' &' <(!;;!&4.'-&(**(' &3' &1=/-&.*' &41' /(&./(' ./' 1*=/.*' 2!63*;',' ./' .2*' 2(!3.!&4' 7(!*3.2//1' &41' &4' &3-*.!-';!,*' &41' A(/.*' <*.A**4' CNN' &41' CNV' '&' 32/(.'2!3./(5'/,' .2*' ;1' *3.&6*4.'&41'.2*' 2(!3.!&4' 20(-2' !4'.A/'=/;06*3'*4.!.;*1' $(" ' .' !3' &' A/(D'*0*-0.*1'/4'.2*' 6/1*;' /,' &;;03.' &41' &-!.03' &41' 1!37;&53' >(*&.' !4103.(5' &41' 3.5;!3.!-',!4!32

4!46&40 ' 4'&4-!*4.' .(03-&4' 1*!.5' /,' .2*' 4/-.0(4&;' 2*&=*43' ./' A2/6' A&3' &3-(!<*1'.2041*(' <5'4!>2.'' &3' .2&.'<5'1&5' A&3',D3-(!<*1'./' 7.*(' *' 2&1'&' -2&7*;' /4'.2*' &7!./;' &41'2!3'!6&>*' !4'.*((&'-/..&' 3.//1'/4'.2*'7*1!6*4.' /,' .2*'>(*&.'*67;*' *3!1*3' .2!3' 2*' 2&1' &' .*67;*' 4*&(' .2*' !(-03' &0!603'A2*(*'/4'.2*'@N.2'/,' 04/' &4'&440&;'3&-(!,!-*'A&3',;*(*1'./'2!6' !3' .(0*' 3!>4!,!-&4-*' <*-&6*' !4' ;&.*(' .!6*3' 3/' /<3-0(*'.2&.'2!3'4&6*'A&3',&;3*;5'*07;&!4*1' &3' 6*&4!4>'.2*'2!>2*3.'/,' .2*' &4*3'# 2' ' @ '&41'*:0!=&;*4.'./'5N'! ' /(' .2*' (**D' ;0./ 04' /1' ' / '&41' = ' 04"1!&;' '@ & 01= .&0!;;;&' ' /6&4'3&-(!,!-*' -/4F 3!3.!4>'/,'&' </&('83)39'&'(&6'& '&41'&' <0;;/B' # " ' A2!-2'A&3'/,,*(*1'!4' 4*&(;5'&;'-&3*3'/,';'03.(&.!/4'& '-0.'041*(')& ' /(',*6&;*'1*!.!*3'.2*',*6&;*' &4!6&;' &41' /4' -*(.&!4' /--&3!/43' 5/04>' &4!6&;3'A*(*'3*;*-.*1

077;;-&.;14*3' 2*' /6&4',&3.' 1&5B' /('1&53'/,'206!;!&.!/4'-*;*<(&.*1'/(!>!4&;;5' !4'.!6*3'/,'>(*&.'1!3.(*33'&,.*(' .2*' !<5;F ;!4*' </!D3' 2&1' <**4' 10;5'-/430;.*1' 2* A2/;*' 7/70;&.!/4' </.2' /,' .2*' ./A43' &41' 30((/041!4>'-/04.(5',(**'</(4'&41'*6&4F -!7&.*1'6*4'A/6*4' &41' -2!;1(*4'.//D' 7&(.'!4'.2*'3/;*64!.5' 2*'A2/;*'-*(*6/45' 2&1'&' (**D'(&.2*('.2&4'&' /6&4'-/;/0(' (/6'.2*'.*67;*' /,' 7/;;/'7(!*3.3'&41' ;&56*4'-(/A4*1' A!.2'A(*&.23' /,' <&5' 6&(-2*1'!4'7(/-*33!/4'./'.2*'3/041'/,'3!4>F !4>'&41'.2*'4/.*3' /,' .2*';5(*'=!3!.!4>'&;' .2*' 2/;5' 7;&-*3'*37*-!&;;5' .2/3*' A2*(*' " ' # ' A*(*' 2*;1' --/(1!4>' ./' .2*' (!.*' !4.(/10-*1',(/6' .2*' /(!*4.&;' (**D3'/,' 3!&' !4/('.2*' /6&43'./0-2*1

GA!.2' .^*!(' ,&-*3'.2*' .2(*32/;1' /,' .2*' 3&4-F .0&(!*3' 7(/3.(&.*1' .2*6 *;=*3' <*,/(*' .2*' 3.&.0*3' /,' .2*' >/13' -;&3,a!4>' .2*!(' D4**3' &41' D!33!4>' .2*!(' 2&413' &41',**.'' 2!;*' .2*' 7(&5*(3' A*(*' <*!4>' &!1' !4-*43*' &41' A!4*' A*(*' /,,*(*1' .2*' 7(&5*(3' <*!4>' (*F 2*&(3*1' <5' .2*' 6*6<*(3' /,' .2*' 1 ' *4.(.!3.*1' A!.2' .2*' -&(*' /,' .2*' !<5;;!4*' </!D3' 83**' $'$ 7 ' &41' .2*' 7*(,/(6&4-*' /,' .2*' 2/;5' (!.*3' 7(*3-(!<*1' <5' .2*6 ' 4' /0-2' 1&53' .2*' .*67;*3' /(1!4&(!;5' -;/3*1' ./' .2*' 70<;!-' /(' /4;5' &--*33!<;*' 041*(' -*(.&!4' (*3.(!-.!/43' A*(*' 8 /' ,&(' &3' 7(&-.!-&<;*9' .2(/A4' /7*4' ./' &;;' 2*' .2&4D3>!=!4>3' ,,/-(**1' <5' .2*' *4&.*' &,.*(' >(*&.' =!-./(!*3' A*(*' -*;*<(&.*1'!4' &' 3!6!;&(' 6&44*(' 2*3*' G/(!>!4&;;5' ;&3.*1' /4;5' /4*' 1&5' <0.' !4' .2*' //0(3*' /,' .!6*' A*(*' ;*4>.2*4*1' 04.!;'&.' .2*' *41' /,' .2*' *70<;!-' .2*5' 3/6*.!6*3' %*0.*41*1' /=*(' ,/(.5' /(' ,!,.5' 1&53' &41' A*(*' /,.*4' 04!.*1' .=!.2' &' 70<;!-' ,*&3.!4>' /,' .2*' 7*/7;*

03&.!14' 2*' /(!>!4&./(' /,' .2*' ..!-' */6*15' # !'5 & ' $9

A/(1' 2*' /(1!4&(5' 3A/(1' /,' .2*' B (**D3' # (T ',!>3'@' &41'?9'2&1'&'3.(&!>2.' .A/"*1>*1'<;&1*' $?' ./' $R'!4-2*3';/4>' &41' @' ./' @W" !4-2*3' <(/&1" .2*' 2&41;*' A2!-2' A&3' /,.*4' 6&1*'!4'/4*' 7!*-*' A!.2' .2*' <;&1*

' ' '

8S42;'&41' ^/4*(',!>'@UU9

A&3'C' ./'V'!4-2*3';/4>' &41' A!.2/0.' &' <*41' <0.' A!.2' &' -(/33' /(' 32*;;"32&7*1' >0&(1' 2*' 3-&<<&(1' A&3' /,' 6*.&;' /(' ;*&.2*(' 6/04.*1' A!.2' 6*.&;' &41' ,(*:0*4.;5' //=*(*1' .2*' 2!;.' &3' A*;;' &3' .2*' <;&1*' # ' B>' $9' .' 204>' <5' &' <*;.' .2(/A4' /=*(.2*' 32/0;1*(' 030&;;5' /4' .2*' ;*,.' 3!1*' /4' &' ;*=*;' A!.2' .2*' 2!7' .' .2*' <*>!44!4>' /,' .2*' C.2' -*4.0(5' " ' &' 3A/(1' /,' 4*&(;5' 1/0<;*' .2!3' ;*4>.2' A&3' !4.(/10-*1' <5' 72!-(.*3' ,/(' .2*' ;!>2.' !4,&4.(5' -&;;*1' 7*;.&3.3' 3A/(1' 3;!>2.;5' -0(=*1' /4' /4*' 3!1*' ,(/6' .2*' 2!;.' 07A&(13' &41' /4;5' 32&(7*4*1' /4' .2!3' 3!1*' A&3' .2*' (8,!>3' &41' C9' 2!3' A&3' .2*' 32&7*' /,' .2*' 7&(.&4' 3A/(1#-: ' A2!-2' A&3' 7*-0;!&(;5' 32/(.' /(' .2*' /6&4' 3A/(1' @) 5-/72&4.'8 (' , *# 1$' /(!>!4&;;5' 3!>4!,!*1' &--/(1!4>' ./' .2*' 7/70;&(' 1*(!=&F .!/4' /4*' A2/' </(/0>2.' !4./' 4/.!-*' -&3*3' /,' .2*' 7(/2!<!.*1' *07/(.' /,' ,!>3' ,(/6' ..!-&' 2*' .*(6' A&3' &,.*(A&(13' &77;!*1' ./' &' 7(/,*33!/4&;' !4,/(6*(' &41' &--03*(' 2*(*' A*(*' 4,&45'30-2' 7*(3/43' A2/'-&((!*1' /4' &' ;0-(&.!=*' <03!4*33' !4' .2*43' &.' .2*' .!6*' /,' .2*' 1*-&5' /,' .2*' 1*6/-(&-5' !4' 37!.*' /,' .2*' ,&-.' .2&.' .2*' &0.2/(3' /,' ,&;3*' &--03&.!/43' A*(*' 704!32*1' 6/3.' 3*=*(*;5 56<1!&' 2*' (**D' .*(6' ,/(' .(*&.!*3' <*.A**4' .A/' 3.&.*3' 1*.*(6!4!4>' .2*' 7(/F -*10(*' !4' .2*' *=*4.' /,' ;&A30!.3' .&D!4>' 7;&-*' <*.A**4' .2*!(' (*37*-.!=*' 30<\(*-.3' ' -/6F 6/4'7(/=!3!/4' /,' .2*3*' -/4.(&-.3' A&3' .2&.' &' 7&(.5' A2/' ;/3.' 2!' -&03*' A2*4' .(!*1' <5' .2*' ;&A3' /,' .2*' ,/(*!>4' 3.&.*' -/0;1' &77*&;' ./' .2/3*' /,' 2!3' /A4" &41' 3!6!;&(;5' .2*' 7&(.5' A2/' 2&1' <**4' A/(3.*1' !4' 2!3' /A4' 3.&.*' A&3' &;;/A*1' ./' &77*&;' ./' .2*' ;&A' !4' 2!3' /77/4*4.3' 3.&.*' 0-2' .(*&.!*3' A*(*' 6&1*' -2!*,;5' ./' ,&-!;!.&.*' -/66*(-!&;' -/6F 604!-&.!/43' <*.A**4' 1!,,*(*4.' 3.&.*3 56 6 J-243' &T " ' ' ' /F 6&4' /(&./(' &41' A(!.*(' /,' ;*..*(3' A2/';!=*1' !4' .2*' ;&..*(' 7&(.' /,' .2*' C.2' -*4.0(5' ' *' A&3' /,' 4/<;*' <!(.2' &41' A&3' 7(*,*-.' /,' /6*' !4' RC' 041*(' 2* 1 3!03' .2*' (*&.' &41' &,.*(A&(13' -/430;' !4' T$' ;.2/0>2' 2*' ,*&(;*33;5' &12*(*1' ./' .2*' 1*-&5!4>' 7&>&4!36' &41' *=*4' 6/=*1' .2*' (*3./(&.!/4' /,' .2*' &;.&(' /,' !-./(!&' !4' .2*' -/04-!;" -2&6<*(' /,' .2*' *4&.*' !4' &4' &11(*33' ./' .2*' *67*(/(' 2*' A&3' 4*=*(.2*;*33' (*37*-.*1' <5' 2!3' 2(!3.!&4' /77/4*4.3' ,/(' .2*' 70(!.5' /,' 2!3' ;!,*' &41' ,/(' 2!3' >(*&.' ;*&(4!4>' 2*' ,(&>6*4.3' /,' 2!3' " ' -/43!3.' /,' .2(**' 4/.' *4.!(*;5' -/67;*.*' 7&4*>5(!-3' /4' &;*4.!4!&4' ' &41' 2!3' 3/4' S(&.!&4' A(!..*4' !4' 2!3' 5/0.2' &41' ;&(>*(' ,(&>6*4.3' /,' 3!0' 3*4&./(!&;' /(&.!/43' *"7/33*33' &' -/;;*-.!/4' /,' 2!3' ; ' &((&4>*1' &77&(*4.;5' <5' 2!3' /A4' 3/4' A2/' &;3/' A&3' &' 3.&.*36&4' /,' 6&(D' .' !3' 1!=!1*1' !4./' .*4' </!D3' /4' .2*' 3&6*' 7;&4' &3' .2/3*' /,' ;! !' &41' -/4.&!4!4>' !4' .2*' ;&3.' </!D' .2*' /6-!&;' -/((*37/41*4-*' . 1' /,' ,&.2*(' &41' 3/4' A!.2' .2*

67(/(' 2!3' !3' .2*' 6/3.' =&;0&<;*' 7&(.' /;' &' */;;*/.!/ ' A2!-2' !3' 4/.' 04!67/(.&4.' &3' &,,/(1!4>' 60-2' !4,/(6&.!/4' &</0.' .2*' &0.2/(3';!,*' &41' .!6 3
(667(,&' ' 2 " (' /(' R
": ' 8$9' '.*(6'03*1'&.' .2*43' ./'1*4/.*' &' -/67&45'E 6*1'./' (&!3*' .2*' 7(/7*(.5'.&O' !43.!.0.*1'!4' .2*' 5*&(' C@R' ' 5' ./' 1*,(&5' A&(''*07*43*3' & ' &-2'/,' .2*' .*4' (: ' &77/!4.*1' $@N' /,' !.3' A*&;.2!*(' /!.! *43'&41' .2*3 ' A*(*' 1!=!1*1' !4./' .A/' ' /,' 3!0.5' 6*6<*(3' *&-2'3/' .2&.' .2*' 406<*(' /,' 6*6<*(3' !4' .2*' .A*4.5' : ' &6/04.*1' ./' $@NN' 8-&;;*1' : ' 0.' /,' *&-2' /,' .2*' .A*4.5' : ' ,!,.**4'/,' .2*' A*&;.2!*(' -!.!Q*43' A*(*' -2/3*4' 6&D!4>'UTS!4'&;;' A2/3*' 10.5' !.' A&3' ./' 7&5' .2*' .&0*3' !4' &1=&4-*' /4' <*2&;' /,' .2*' (*3.' 2!3'306'2&1' ./'<*' (*F ,041*1'./'.2*6'<5' .2*' (*3.'!4' -/4K04-.!/4' A!.2' .2*' 7//(*(' .&0&<;*' -!.!Q*43' A2/' A*(*' ;!D*A!3*' &77/(.!/4*1' /,;' ./' =&(!/03' : 2' '<0.' A!.2/0.'<*-/6!4>'&-.0&;' 6*6F <*(3'/,' .2*6' &41' A*,*' 1(&A4'07/4'<5'.2*' (*&;' : ' ./' &4' *0.*4.' 7(/7/(.!/4&;' ./' .2*!(' 6*&43' 8@9' ,.*(' VR'.2!3'6*.2/1' A&3' &77;!*1' ./' .2*' 10.5'/,' *:0!77!4>'.2*' A&(''=*33*;3'D4/A4'&3'.2*' (' # ') ' &-2' /,' .2*' .A*4.5' : R ' 2&1' &' -*(.&!4' 406<*.' /,' 32!73' &33!>4*1' ./' !.' .2*' (*&;' : ' 84/.' !4-;01!4>' .2*' 7//(*(' -!.!Q*439' 1!=!1*1' .2*' *07*43*' &6/4>' .2*63*;=*3'&41' &' =&(5!4>' 406<*(' 8&.' .2*' 6/3.'3!0.**49'/,' .2*' (!-2*3.' 2&1' ./' (&!3*' .2*' 6/4*5' &1=&4-*1' ,/(' &' 32!7' /' 6&4&>*' !.3' &,,&!(3'*&-2' : 2' ' 2&1' !.3' 307*(!4.*41*4.3' -0(&./(3' &41' &33*33/(3' 2*' 6&>!3.*(!&;' -/4.(/;' A&3' !4' </.2' -&3*3' !4' .2*' 2&413' /,' .2*' < '<*!4>'-/44*-.*1' A!.2'.2*' 6!;!.&(5' 3077;!*3' 2/0>2'<5'.2!3'&((&4>*6*4.'.2*' (&!3!4>'/,' .&0*3'&41',!..!4>'/0.'/,' .2*' 32!73' A*(*' &--*;*(&.*1'5*.'!.' A&3' /7*4'./'&<03*' !,' .2*' : 0410;5' <0(1*4*1' .2*' 7//(' <5' &4' 04K03.' 1!3.(!<0.!/4' 4' .2*' 1!370.*3' A2!-2' .203' &(/3*' .2*' 1*-!3!/4' (*3.*1' A!.2' .2*' E ',' &45' /4*' .2/0>2.' .2&.' &4/.2*(' /0>2.' ./' 2&=*' <**4' .&0*1' !43.*&1' /,' 2!63*;,' 2*' -/0;1' &=&!;' 2!63*;;' /,' " Q' # ' =*4' .2*' A2/'8;!D*' .2*' -!.!Q*439' 2&1' ./' 7&5' A&(' .&0*3' A*(*' 1!=!1*1' !4./' : ' f (!3./.;*' $ " "' ' (" ' ?$' 1*F 3-(!<*3' /4*' /,' .2*' : ' &3' !41!=!10&;;5' (*37/43!<;*' ,/(' 307*(!4.*41!4>' .2*' : ' ',/(' <0!;1!4>'.(!(*6*3g 5!..7;*> 3' 4' (**D' 65.2/;/>5' .A/' -;!,,3' /(' .;/&.!4>'!3;&413' 4*&(' .2*' *4.(&4-*' /,' .2*' ;&-D' *&' A2!-2'-(032*1'&;' =*33*;3 .2&.' .(!*1' ./' 7&33' <*.A**4' .2*6' 2*' (>/4&0.3' A!.2' .2*' 2*;7' /,' R(&' 8/(' .2*4*9' A*(*' .2*' ,!(3.' ./' 30--**1' !4' 3&!;F !4>' .2(/0>2*' &,.*(' .2!3' .2*' (/-D3' <*-&6*' !66/=&<;5',!0*1' #$ ') 5671 3!; 0' ' (**D' 1(!4D!4>"7&(.5' : (' .2*' 6&3.*(' /,' .2*' (*=*;3' 8.,-*' 0 5671 3;43' #6 ' .9 " ' ' /6&4'7/*.' A2/';!=*1' &.' .2*' *41' /,' .2*' C.2'&41'<*>!44!4>'/,' .2*' V.2'-*4.0(5' !' &0.2/(' /,' &' -/;;*-.!/4' /,' $NN' (!11;*3' !4' =*(3**' *&-2' A(!..*4' !4' .2(**' ,&!(;5' -/((*-.' 2*O&6*.*(3 54*>1(!' 2*' .2*4!&4' .*(6',/(' &1=/F -&.*3' -2/3*4' <5'.2*' 7/7;*' 4' .2*' 7;*&1F !4>3'# ' $ # &'$'&9' A2!-2'.//D'7;&-*' A2*4' &45' &;.*(&.!/4' A&3' 6&1*' !4' .2*' ;&A3' .2*5' 2&1' ./' 1*,*41' .2*' 2!.2*(./' *O!3.!4>';&A3' 4' .&.*' .(!&;3' !.' A&3' .2*!(' 10;5'./'-/410-.'.2*' -&03*' /4'<*2&;' /,' .2*' 7*/7;*'/(' ./' 37*&D' !4' 3077/(.'/,' .2*' &-.0&;' 7(/3*-0./(K,4 3; 3' ' (**D' 72!;/3/72*(' </6' UR' 9'&.'8 5(4*' /,' 1!3.!4>0!32*1'7&(*4.F &>*' *' 3.01!*1'.2*' */" ;&./4!-' 72!;/F 3/725' !4' ;*O&41(!&' 041*(' 57T.;&' &41' A&3' 2*(' 6/3.',&6/03' &41' 6/3.' 1*=/.*1' 707!;' *' &,.*(A&(13'<*-&6*' &' 2(!3.!&4' &41' A&3' 6&1*' <!32/7' /,' . ;>6&!3'!4' C$N' *' 1!*1'&</0.'CRN' 2*' Q*&;' &41',&!.2,0;F 4*33' A!.2' A2!-2'2*' 1!3-2&(>*1' 2!3' /,,!-*' &41'.2*' .*4&-!.5' A!.2' A2!-2' 2*' 2*;1' ./' 2!3' 72!;/3/72!-&;'-/4=!-.!/43'A2!-2' 2*' *41*&F =/0(*1'./'(*-/4-!;*' A!.2' 2!3'8 2(!3.!&4',&!.2' &(*' 32/A4'<5'2!3' A(!.!4>3' 2*3*' -/43!3.' /,' 3*=*(&;' 37**-2*3' &41' 1!33*(.&.!/43' &6/4>3.' A2!-2' .2&.' *4.!.;*1' 5 "' !3' 7&(F .!-0;&(;5'!4.*(*3.!4>' &3' 32/A!4>' 2/' 2*' -&6*' ./' <*' &' 72!;/3/72*(' A2!;*' 2!3' , ' ' " ' !3' 1!3.!4>0!32*1' ,/(' !.3' A!.' &41' >*4!03' 2*5'&;3/' -/67(!3*' &' -/;;*-F .!/4' /,' $?N' ;*..*(3' A2!-2'7(*3*4.' 03' A!.2' &' ,&!.2,0;' 7!-.0(*' /,' 2!3' -2&(&-.*(' &41' A/(D'' !4' ;&.*(' .!6*3' .2*5' A*(*' (*>&(1*1' &3' 6/1*;3' /,' *7!3./;&(5'3.5;*' &3.;5' .2*5' !4-;01*' .*4' 2564 3' !4' !&6<!-' =*(3*' A2!-2' &;.2/0>2' &=/A*1;5' 2(!3.!&4' &(*' &.' .2*' 3&6*' .!6*' !437!(*1' .2(/0>2/0.' <5' */" ;&./4!-'!1*&3 54 -;' 2*' (**D' 4&6*',/(' &' ;/1>F !4>'2/03*'A2!-2'2*;1'3*=*(&;',&6!;!*3 54-*-;J' 8/(' J!" 0' </.2' " ' 2*' *=*' /,' .2*' .2*4!&4',*3.!=&;' /,' .2*' &4&.2`43*&'# 54B,!3;3' ' -/6,/(.&<;*' <(!>2.;5' -/;/0(*1' >&(6*4.' 030&;;5' A/(4' <5' .2*' /6&43' &.' 6*&;"!6*3' &41' /4;5' !4' 70<;!-' 10(!4>'.2*' $

K,(;&' &' ' 1*!.5' /,' >*4*(&.!/4' &41' ,*-041!.5' GA/(32!77*1' !4' 5(!&4' ! (&7 ;!3' .!41*(' .2*' 4&6*' 1 ' A2/6' .2*' ;&.*(' (**D3' &41' .2*' /6&43' 3!67;5' -&;;*1' .2*' 5(!&4'>/11*33' (/6' .2*' .!6*' /,' .2*' 3/=*F (*!>4.5' /,' .2*' *;*4-;1) ' A2*4' .2*' &4-!*4.' 7&>&4!36' A&3' 2!>2;5' 2/4/0(*1' !4' !*(&" 7/;!3' .2*' A/(32!7' /,' .2!3' >/11*33' 37(*&1' &6/4>' .2*' (**D3' &41',(/6' .2*6',/041'!.3' A&5' ./' /6*'8A2*(*' 32*' 2&1' &' .*67;*' !4' .2*' 1&53' /,' .2*' 67!(*9' &41' ./' /.2*(' 7&(.3' /,' .&;5' &41' 3.!;',&(.2*(' A*3.' 2*' /;1' !1*&' /,' 2*(' &..(!<0.*3' 2&1' 3/' A!1*4*1' !4' .2*' -/0(3*' /,' .!6*' .2&.' 32*' 32&(*1' .2/3*' /,' 04/' *403' 2*&' 5<*;*' !4*(=&' ! 4&' .2*' &(*)' &41' /.2Z(' >/11*33*3' 2*' !3' (*7(*3*4.*1' /4' /6&4' 6/406*4.3' 3*&.*1'/4'&'.2(/4*'<*.A**4'.A' ;!/43' *(' 7(!*3.3' A*(*' B4*(&;;5' *040-23' 2*5' A*(*' !4' .2*' 2&<!.' /,' 6 !4>'*0-0(3!/43'!4./' (**-*' &41' .&;5' ./' *0.*41' .2*' A/(32!7' /,' .2*' >/11*33'<5' 6*&43' /,' *-3.&.!-' 1&4-*3' &41' 7(/72*-!*3' &41' ./' -/;;*-' K&/03' &;63' ,/(' 2*(' 3&4-.0&(5

5(!40' 4' (-&1!&4' 5672' 1&0>2.*(' /,' .2*' (!=*(">/1' &114" 32*' A&3' -2&4>*1' <5' 2*(' 3!3.*(3' !4./' &' (**1' !4' 2*(' ,;!>2.',(/6' .2*' *4&6/0(*1' &4' &4'-0.' .2!3'(**1'!4./' 3*=*4' 8/(' 4!.!*9' 7!*-*3' &41' K/!4*1' .2*6' ./>*.2*(' A!.2' A&0' !4' >(&10&;;5' 1*-(*&3!4>' ;*4>.23' ./' ,/(6' .2*' !43.(06*4.' -&;;*1' & : " -' /(' H' &43' 7!7* I' 2!3' A&3' -2!*,;5' 03*1'<5'2*(136*4'&41'32*72*(13'&41'!3'/4*' /,' .2*' &..(!<0.*3' ,/041' !4' 7!-./(!&;' (*7(*F 3*4.&.!/43' /,' &4' q

533;.:;;f' &" ' 2*' -/66/4' 6*&;3' .&D*4' !4'70<;!-' &6/4>' .2*' /(!&43' !4' 7&(.&' &41' (*.*' &41' -/4,!4*1'./' 6*4'&41' 5/0.23' /4;5' 4' ' &;;' .2*' $ ' /(' -!.!F Q*43' /=*(' .A*4.5' 5*&(3' /,' &>*' A*(*' /<;!>*1' ./' &..*41' .2*3*' 6*&;3' A2!-2' A*(*' .2*(*' -&;;*1' . M ' /' /4*' A&3' &;;/A*1' ./' &<3*4.' 2!63*;,' *0-*7.' ,/(3/6*' 3&.!3,&-./(5' (*&3/4' 2*' .&<;*' A&3' 7(/=!1*1' ,/(' <5' ,!0*1' 6/4.2;5'-/4.(!<0.!/43' /,' <&(;*5' A!4*' -2**3*' ,!>3' &41' 6/4*5' ./' <05' 6*&." .2*' .&.*' /4;5' 7&!1' ,/(' .2*' 6&!4.*4&4-*' /,' .2*' .A/' D!4>3' *&-2' /,' A2/6' (*-*!=*1' &' 1/0<;*' 7/(.!/4' 2*' 7;&-*3' A2*(*' .2*' : ' A*(*' 2*;1' A*(*' -&;;*1'.*4.3' &41' .2*' >0*3.3' A*(*' 1!=!1*1' !4./' 6*33*3' /,' &</0.' B.**4' 6*6<*(3' =&-&4-!*3' !4' A2!-2' A*(*',!;;*1' 77 <5' <&;;/.' 04&4!6/03' -/43*4.' <*!4>' !41!3F 7*43&<;*',/(' *;*-.!/4' 2*' 6*336&.*3' A*(*' -&;;*1' .*4."-/67&4!/43' &3' .2*5' &-.0&;;5' A*(*' !4' .!6*' /,' A&(' 2*' .&<;*"-/67&4!/43' /,' .2*' .A/' D!4>3' A2/' 2&1' &' -/66/4' .&<;*' A*(*' .2/3*' A2/',/(6*1' .2*!(' *3-/(.3' !4' .2*' ,!*;1' --/(1!4>;5' .2*' >*4*(&;3' /,' 16" 3!/43' !4' .2*' &(65' 2&1' .2*' -/4.(/;' /,' .2*' : ' 2*' 7(!4-!7&;' 1!32' A&3' .2*' A*;;" D4/A4' <;&-D' <(/.2' 86*&.' -//D*1' !4' <;//1' 3*&3/4*1' A!.2' =!4*>&(' &41' 3&;.9' /,' A2!-2' *&-2' 7*(3/4' (*-*!=*1' /4;5' &' -*(.&!4'&6/04.' ./>*.2*(' A!.2' <&(;*5' <(*&1' &41' A!4*' &3' 60-2'&3'.2*5';!D*1' 2!3' A&3',/;/A*1'<5' &' -/0(3' /,' -2**3*' /;!=*3'&41',!>3' *3!1*3' .2!3' .2*' .&<;*"-/67&4!/43' A*(*' &;/A*1' 8&41' !41**1' A*(*' 3/6*.!6*3' (*:0!(*1' &3' &' 7*4&;.5',(' 36&;;/,,*4-*39' ./' >!=*' &' 3*-/41' -/0(3*' -/43!3.!4>' /,' A2*&.*4' <(*&1' /(' =*4!3/4'-&0>2.'<5'.2*63*;=*3'!4'.2*' -2&3*' 4/' /4*' A&3' &;;/A*1' ./' /<.&!4' .2!3' <5' 70(F -2&3*' 4' (*.*' .2*' 7*/7;*' &;A&53' 3&.' 1/A4' A2!;*' *&.!4>' &41' !4' 7&(.&'.2!3' A&3' /(!>!4&;;5' .2*' -03./6" <0.' &,.*(' &' 32/(.' .!6*' .2*5' A*(*' !4' .2*' 2&<!.' /,' (*-;!4!4>' /4' A//1*4'<*4-2*3

4' $ ' .2*(*' A&3' &'70<;!-',041',/(' .2*' : ' 2!3' &<3/(<*1' /4*"2&;,' /,' .2*' .&.*' (*=*40*'&41'*=*(5'-!.!0*4'-/4.(!<0.*1' ./' !.' &'.!.2*' /,' .2*' 7(/10-*' /,' 2!3' ;&41' &3' A*;;' &3' &4' &440&;' 306' /,' 6/4*5',/(' *&-2' 3;&=*' 2!3',041'4/.'/4;5'</(*' .2*'*07*43*' /,' .2*' 6*&;3' /,' .2*' 6*4' &41' </53' &</=*' &' -*(.&!4'&>*'<0.'&;3/'7&!1'&'306' 30,.!-!*4.' ./' 1*,(&5' .2*' *07*43*3' !4-0((*1' <5' .2*' A/6*4' -2!;1(*4' &41' 3;&=*3' !4' 1!4!4>' &.' 2/6*' 2*3*' -/67&4!*3' A2!-2' 1!4*1' !4' -/66/4' A*(*' 2*(*' -&;;*1' (' 2*' </53' A2/' 3&.' 4*&(' .2*!(' ,&.2*(3' /4' .2*' >(/041' /4;5' (*-*!=*1' 6*&.' ./' .2*' *0.*4.' /,' /4*"2&;,' .2*' 7/(.!/4' /,' &4&10;.' 2*' 5/0.23' 1!4*1'./>*.2*(' &41' 2&1' ./' &!.' 07/4' .2*!(' *;1*(3' .2*5' 2&1' &;3/' ./' <*' -/4.*4.' A!.2' &4' &6/04.' /,' A!4*' A2!-2' A&3' 6*&30(*1' /0.' ./' .2*6',/(6' &;&(>*' </A;' /,' 6!0*1' A!4*' A2!;3.' .2*' /;1*(' 6*4' -/0;1' (*7;*4!32' .2*!(' -073' &3' .2*5' 7;*&3*1' *(*' &3' !4' 7&(.&' .2*(*' A*(*' 7*4&;.!*3' ,/(' !4.*67*(&4-*' ,.*(' (*7&3.' 3/6*' .!6*' A&3' 37*4.' !4' -/4=*(3&.!/4' /4' 7/;!.!-3' &41' /.2*(' 30<F K*-.3' 7(!4-!7&;;5',/(' .2*' !43.(0-.!/4' /,' .2*' 5/0.23

J<* &(!43' ' ;*..*("-&((!*(' /(' -/0(!*(' & '

J<*6&' 8$9' &' 32/7' & ' /) !' 8@9' &' .&=*(4' & 'A ' N'

&<;*'8 (' Q '*' &.' " ' &<;*3' 3*(=*1' !4' &4-!*4.' .!6*3' /4;5',/(' .2*' 307F 7/(.'/,'=*33*;3'4*-*33&(5',/(' 6*&;3' 4/.' 8&3' A!.2'039',/(' A(!.!4>' &41' (*&1!4>' &3' A*;;

3 .2 -/0-2*3 " A2!-2 7*/7; (*-;!4*1 &. 6*&;".!6*3 A*(4/. 2!>2 .2 .&<;*3 A*(6/3.;5 ;/A*(.2&4 /0(3 /6 A*(:0&1F (&4>0;&(&41 2&1 ,/0(;*>3 8,!> $9 .2!3 A&3 ,/(& ;/4> .!6 .2 /4;5 ,/(6 -03F ./6&(5 &6/4> .2 /6&43 .2*(3 2&1 -!(-0;&(/(/=&; ./73 &41 (*3.*1 *!.2*(/4 /4 ;*> /(86/(,(*:0*4.;59 /4 .2(** ./ A2!-2 .2 32&7* /, &4!6&;3 ,**. A&3 >!=*4 <5 7(*,*(*4- 8,!>3 @ 9

9 8@9 8 9

8 (/6 (**D &3*3 9

2 (**D3 3*. &2!>2 =&;0 /4 .2 &(F .!3.!- &1/(46*4. /, .2*!(.&<;*3" <0. .2 /6&4 ;/= /, 1!37;&5 *07*41*1 6/(6/4*5 /4 .2*3 &(.!-;*3 /, ,0(4!.0(.2&4 /4 &45 /.2*(2 ,**. A*(A(/0>2.!4 .2 ,!4*3. 6*.&; !=/(5 /(3./4 A/(D 2 -/43.(0-.!/4 /, .2 ./7 /, .2 .&<; A&3 &6&..*(/,37*-!&; ;000(5 . A&3 -/67/3*1 *!.2*(/, .2 4/<;*(6*.&;3 (&(D!413 /, 3./4* /(-/3.;5 =&(!*.!*3 /, A//1 37*F -!&;;5 -/3.;5 A*(.2 " /(@ .&<;*3 (*3.!4> /4 /4 ;*> A!.2 .2 A//1*4 ./7 -0. /0. /, &3!4>; ;/> !4 .2 A2/; /, !.3 1!&6*.*(2 6/3. *07*43!= &41 6/3. 3/0>2."&,.*(A//1 A&3 .2&. /, .2 &4 *=*(>(**4 >(/A!4> !4 .2 .;&3 /04.&!43 8A2!-2 2&3 <**4 !1*4.!,!*1 A!.2 .2 -57(*33 /(K04!7*(9 2 7(!- /, .2*3 " A2!-2 A*(>*4*(&;5 307F 7/(.*1 <5 /4 !=/(5 ;*> =&(!*1 &--/(1!4> ./ .2 1!6*43!/43 /, .2 1!&6*.*(A2!-2 A*(3/6*.!6*3 &3 60-2 &3 ,/0(,**. &41 &;3/ &--/(1!4> ./ .2 <*&0.5 /, .2 >(&!4 A2!-2 A&3 <(/0>2. /0. <5 7/;!32 2 7(!-*3 4&6*1 ,/(3!4>; 37*-!6*43 /, 30-2 .&<;*3 (&4>*1 ,(/6 EV C R ./ E$V @@?2 f ;!45 > 0!!! T@ T? $N@g 4 &--/04. / .2 -/3.;!4*33 /, .2!3 D!41 / A//1 .2 ./73 A*(3/6*.!6*3 6&1 /, 3/6 -/66/4 6&.*(!&; *37*-!&;;5 6&7;* &41 -/=*(*1 /=*(A!.2 &=*4**(/,

2 36&; 3*(=*1 &3 &3!1*</&(1 .3 3:0&(./7 A2!-2 A&3 >*4*(&;5 ,0(F 4!32*1 A!.2 &(&!3*1 (!6 (*3.*1 /4 /4 3077/(.# Q (" A2!-2 A&3 6&1*/, 6&(<;* <(74Q* /(3!;=*(&41 ;*4. !.3*;, (*&1!;5 ./ 3-0;7.0(&; .(*&.6*4. 4/.2*(D!41 / , /(4&6*4.&; .&<;* A&3 .2 (!4 .2 ,/(6 /, & (**D .(!7/1 A!.2 &(/041 ./7 &<;*3 A*(&;3/ !4-;01*1 !4 .2 /(1!4&(5 ,0(4!.0(/, & .*67;* *37*-!&;;5 30-2 &3 3.//1 1K(*-.;5 !4 ,(/4. /, .2 3.&.0 /, .2 >/1 &41 /4 A2!-2 A*(;&!1 .2 /,,*(!4>3 4/. !4.*41*1 ./ < <0(4. # $ (= ,!>3 $ @9

&<;!406 &! & & 1A*;;!4>" #

J-!.43 #$ " 2 -*:*<(&.*1 /6&4 2!3./(!&4 </6 &</0..2 5*&(VC &77&(*4.;5 /,&4 *:0*3.(!&4 ,&6!;5 /.2!4> !3 D4/A4 /, 2!3 <!(.27;&-* &41 !. !3 /4;5 &/-/4K*-.0(.2&. 2 A&3 </6 &. 4. (&64& #+ 2" 4 2!3 (2*./(!-&; *10-&.!/4 2 -&6 041*(.2 !6 6*1!&. !4,;0*4- /, .2 6/3. 1!3.!4>0!32*1 /(&./(3 /, .2 .!6* &(-03 7*(&41 0;!03 *-04143 &41 2 6&1 2!3 ,!(3. &77*&(&4- &3 &4 &1=/-&. &. &4 *&(;5 &>* 6 UU 2 6&((!*1 .2 1&0>2.*(/, .2 -/430; /, .2&.5*&(0;!03 >(;- ;& 32/(.;5 <*,/(.2 ;&..*(3 1*7&(.0(,/((!.&!4 f &- 1 Tg 4 UR"UT 2 2 2*;1 .2 :0(43" ./(32!7041*(*37&3!&4" !4 RN"R$ 2 A&3 3*1!; /(.(!<04 041*(!.03 &41 !4 RR 041*(/6!.!&4 4 TN 2 ;*,. /(4 A!.2 2!3 A!, /4 3/6? /,,!-!&; -/6 6!33!/4 &41 2&1 4/. (*.0(4*1 !4 T A2*4 2!3 ,&.2*("!4" ;&A 1!*1 W &. *41g 4 TU 041*(*(=& 2 A&3 " * &77*&(3 ,/(.2 ;&3. .!6 !4 &-.!= 70<;!- ;!, !4 $NN A2*4 A!.2 2!3 ,(!*41 .2 5/04>*(;!45 2 &77*&(*1 /4 .2 3!1 /, 6 7./3*-0.!/4 !4 &4 !67/(.&4. ;&A"30!.f ;!45 9 !! $@ @g 2 1&. /, 2!3 1*&.2 !3 04D4/A4 <0. 2 7(/<&<;5 30(=!=*1 .! /--*33!-4 /, &1(!&4 !4 $$U

!3 A(!.!4>3 &(*W 8$9 - &;/>0*n/4 .2 1*-;!4 /, *;/:0*4- #5 1 2 (/4 /, 2!3 *&(;!*3. A/(D3 A(!..*4 &77&(*4.;5 f041*(.2 !4,;0*4- /, S0!4F .!;!&4g !4 .2 *&(;5 7&(. /, .2 (*!>4 /, /6!.!&4 &41 /(!>!4&.!4> !4 & -;/3 3.015 /, !-*(/3 (2*./(!-&; (!.!4>3 .!3 /4 /, .2 &<;*3. A/(D3 /, .2 !67*(!&; &>* &41 !4 ;&4>0&>* &41 3.5; !3 3/ 1!,,*(*4. ,(/6 2!3 ;&.*(A/(D3 .2&. !.3 >*40!4*433 2&3 ,(*F :0*4.;5 <**4 1!370.*1 8@9 2 ;!, /, 2!3 ,&.2*("!4";&A >(!-/;& #5 = 1 70<;!32*1 &. .2 <*>!44!4> /, (&K&4 3 (*!>4 &41 A(!..*4 !4 10.!,!,; -/66*6/(&./!4 /, .2 1*-*&3*1 !. !3 !4 .2 6&44*(/, &;;03. ,(/6 A2/6 &-!.03 ./ &;&(>* *0.*4. </((/A*1 2!3"3.5;* 8 9 2 H *(6&4!&I #5 6 " A(!..*4 3 /4&,.*(2!3 1 * &1*3-(!7.!/4 /, .2 *(6&45 /, .2&. .!6* A2!-2 !3 ,/041*1 /4 -&(*,0; (*3*&(-2 &41

!3 *37*-!&;;5 !67/(.&4 &3 .2* 3/0(-* / &;
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,(/6 &;<&/./.2*1*&.2/ /6!.!&4 8?T"T?9
.!41*(.2* .!.;* !4 ,/0(.**4 </D3
/ A2!-2 </D3!"!= &41 .2* ,!(3.2&;; / = /
/=*(!4>4/.: 0!.* .A/ 5*&(3 8?T"UN9 2&=*
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.2* 0;!&42/03* !4 3!O.**4 </D3 70<;!32*1
<*.A**4 $$V &41 $$U <*>!44!4> A!.2 .2*
.!*&.2 /, 0>03.03 8 *4-* .2* /(!>!4&;
.!.;* 9- : 1 * .2* 030&;
.!.;* "" (*3.3 /4 4/ &0.2/(!.5 9 //D3
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.2* ,!,.2 &41 .2* <*>!44!4> / , .2* 3!0.2 !3
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CU &41 .2* 2!3./(5 /, *(/ &3 ,&(&3 ?R9
&(* 3.!;;* 0.&4.

2* .A/7(!4-!7&;A/(D3 /, &-!.03 .203
>!=* 03 &-/67;*.* 2!3./(5 /, .2* *6F
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7(/<&<;5 7(*=*4.*1 <5 2!3 1*&.2 ,(/6 -/6F
7;*.!4> 2!3 1*3!>4 <5 A(!.!4> &4 &--/04.;/,
.2* (*!>4 /, 0>03.03 ,(/6 .2* <&..;* /,
-.!06 &41 &;3/ !4-;01!4> .2* (*!>43 /,
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-2(/4/;/>!-&;* &((&4>*6*4. /, .2* 6&.*(!&;3
!3 7(*1/6!4&4. .2*5 &(* ,/041*1 /4 .2*
6/3.3*&(-2!4> &41 -/67(*2*43!=* 3.015 /,
.2* 2!3./(!-&; &0.2/(!.!*3 &41 &(* 6&(D*1
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./ *;!-!.. .2*!(-&03*3 ,(/6 .2* ,&-.3 .2*6
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&>*4.3 !3 6*.2/1 /, .(*&.6*4. !3 !4 *0.(F
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&41 (*3/;0.*;5 !67&(.!&; &41 2!3 K01>6*4.
!3 *6!4*4.;5 ,&!(.!3 /4;53*=*(* A2*4 2*
!3 1*&;!4> A!.2 A(/4>3 1/4* ./ .2* .&.*
&41 ./ .2* 6/(&; ;&A3 /, .2* 04!=*(3*
2/(/0>2;5 -/4=!4-*1 /, .2* =&;0* /, =!(.0*
2* 2&.*3 =!-* A2!-2 2* 3**D3 ./ .*((!,5 <5
%*07/3!4> !. ./ .2* !>4/6!45 /, &,.*(&>*3
;B.2 &;; 2!3 &16!(&.!/4 ,/(.2* >(*&.4*33 /,
(*70<;!-&4 /6*2* !3 &3.&4-2 !67*(!&;!3.
<*!4> -/4=!4-*1 /, .2* 4*-*33!.5 /, .2*
67!(* ,/(.2* 3.&<!;!.5 /, .2* .&.* 4
-/4.(&3 A!.2 .2* <(!>2 .;*;*>&4-* &41 (!-2F
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&-.!=!.5 2!3 3.5;* <*-/6*3 6/(* 3/6<(* &41
7&.2*.!- !4 &--/(1&4-* A!.2 .2* >;//65
&41 .(&>!- *=*4.3 A2!-2 2* 2&3 ./1*3-(!<*
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-/;/0(!4> &41 &=/!13 .2* /(1!4&(5 1!-.!/4
/, 7(/3* A2!;* 3**D!4> ./ &..&!4 30<;!65
&41 4/=*;.5 /, 3.5;* ;*33 <5 &(-2&!363 .2&4
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-/04.*(7&(.!4 2!3 *,,/(.3 ./ *07(*33 2!63*;,
A!.2 & .*(3*4*33 &41 7(*-!3!/4 A2!-2 !3
/,.*4 7*-0;!&(;5 7/!4.*1 &41 *7!>(&66&.!-
.!3 !4 .2* "" .2&.2!3 ;&3.(&!.1!3F
7;&53 !.3*;, !4 !.3 6/3.-2&(&-.*(!3.!- ,/(6
&41 /4 .2* 3-&;*
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7;/0>2*1 ,!*;1 * .&0>2. .2* -2!*,3
" /, .2* .A*;=* .(03-&4 .(!<*3
A2/ A*(* 3066/4*1 <5 .2* 7;/0>26&4
&(-2/4 2/A ./ !4.*(7(*. .2* 3&-(!,!-*3
./>*.2*(A!.2 .2* ;/* /, .2041*(&41
;!>2.4!4> &41 /.2*(D!413 /, 1!=!4&.!/4
A2!-2 !4 ;&.*(.!6*3 A*(* 7(&-.!3*1 <5 .2*
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&77*&(*1 2* ;/(* /, &>*3 A&3 &. ,!(3.
.(4336!..*1 /!"&;;5 ,(/6 >*4*(&.!/4 ./ >*4*F
(&.!/4 !4 .2* -2!*, ,&6!;!*3 <0. A&3 &,.*(F
A&(13 2&41*1 1/A4 !4 & -/67(*2*43!=*
;!.*(&.0(* f !-*(/ 5 5 !!! ?N V$" =!1
] ?VR , , 0-&4 !? Ug
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;-.*1 <5 .2* .&.*3 -/67/3!4> .2* 2*3F
3&;!&4 ,*1*(&.!/4 * A&3 /4;5 *;*-.*1
A2*4 /--&3!/4 (*:0!(*1 030&;;5 !4 -&3* /,
A&(* A&3 -2/3*4 ,(/6 .2* 6/3. 1!3F
.!4>0!32*1 /, .2* 4/<!;!.5 >*4*(&;;5 ,(/6
.2* ;*0 6 . A&3 2!3 10.5 ./ ;* 5
3/;1!*(3 ,(/6 .2* .&.*3 <*;/4>!4> ./ .2*
,*1*(&.!/4 ./ <* .2*!(-/66&41*(&41 ./
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J;&33;/ &+ + 2*
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.2* (**D 56*43*03 * A&3 /4* /, .2*
04D4/A4 >/13 &41 A&3 /4;5 !4=/D*1 <5
.2* &77*;;&.!/4 + !4 .2* (*,(&!4 ./
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</0>2.2/6*; ;&.*(&--/04. 6&D*3 2!6
/4* /, .2/3* A2/ A!.2 /60;03 A*(*
7(!4-!7&;;5 -/4-*(4*1 !4 .2* (&7* /, .2*
&<!4* A/6*4 &41 2*4-* *07;&!43 .2*
7(/=*(<!&;03* /, 2!3 4&6* &.&;; 6&((!&>*3
f !=5 !T ~ $@g
J;3 (*&.">(&413/4 /, (*.2*03 3/4
/, !&3 &41 *(/ ,&.2*(/, 1(&3.03 &("

! !! 73*03' *-!3.*03' &41' ,*" 72B;*' *' &3' /4*' /,' .2*' (>/4&0.3' &41' A&3' D!;;*1' 5 ;&6703' 8 **'

&;*4.'#6 ' "' &. ' "E ' ' ;!.' .2*' <&;&4-*I' &41'H' .2*' .2!4>' A*!>2*1'I9' 2*' (**D' .*(6',/('8$9' .2*' 2!>2*3.' 6*&30(*' A*!>2.# 8@9' .2*' 1*3!>4&.!/4' /,' &' 306' /,' ;/4*5' -/43!3.!4>' /,' &' 406<*(' /,' -/!43' (!>!4&;;5' *:0&;' ./' !.' !4' ;*>&;' A*!>2.' &41' &;0*' .' A&3' 1!=!1*1' !4./' ?N' " ' /(' NNN' (D 6/4>' .2*' 1!,,*(*4.' !;*4.3' !4' 03*' !4' (**-*' .2*' 6/3.' A!1*;5' 37(*&1' A&3' .2*' ..!-' /,' A2!-2' "5XB.2' 7&(.' # ('A*!>2*1' ;<3' f 2*' !4.(!43!-' =&;0*' /,' .2*' 6*.&;' -/4.&!4*1' !4' .2!3' 306' /,' 6/4*5' A&3' &</0.' E@NN9' # ' "

;13' 8$9' '<(&Q*4'>!&4.'!4' (*.*' A2/6' *72&*3.03' 2&1'>!=*4'./' !4 3' 2!3' >!&4.' >0&(1*1' .2*' !3;&41' *' A*4.' (/041' .2*' !3;&41' .2(**' .!6*3' &' 1&5' &41' 3-&(*1' &A&5' .2/3*' A2/' &77(/&-2*1'!.'<5' .2(/A!4>'3./4*3' &.' .2*6 ' /(' !,' .2*5';&41*1' 2*' 37(&4>'!4./' .2*',!(*' A!.2' .2*6' &41' 7(*33*1' .2*6' ./' 2!3' >;/A!4>'</3/6' .!;;' .2*5'A*(*'<0(4.'./'1*&.2' '=*!4'/,'<;//1'(&4',(/6'2!3'2*&1'./'2!3',//.' A2*(*'!.'A&3'-;/3*1'<5' &' 4& ' 2*4' .2*' (>/4&0.3' &6*./' (*.*' *1*&'-&03*1' .2*' 4&!;'./',&;' /0.'<5' 6*&43'/,' &' 6&>!-' 3/4>' --/(1!4>'./' &4/.2*(' &--/04.' /3&3' .2*' ,&.2*(' /,' 2;;/-.*.*3' 32/.'!.' /0.' A!.2' 2!3' </A' A2*(*07/4' &;/3'<;*1' ./' 1*&.2

8@9' *72*A'/,' 3*1,.;03' !3' !4>*40!.5' &41' 3D!;;' *0-!.*1' .2*' *4=5'/,' 61&;03' A2/' .2(*A'2!6'2*&1;/4>',(/6' .2*' -(/7/;!3' &.' .2*43' # '

` 6;&3' '.(*&30(*(' &' .!.;*' </(4*'<5' 3*=*(&;' /,,!-!&;3' !4' .2*43' 8$9' 2*' 6/3.' !67/(.&4.' /,' .2*3*' A&3' .2*' .(*&30(*(' '/,' .2*' (*=*40*'*;*-.*1'<5'32/A' /,' 2&413' *=*(5',/0(' 5*&(3' *' (*-*!=*1' ,(/6' .2*' 8>*4*(&;' -/;;*-./(39' &;' .2*' 6/4*5' A2!-2' A&3' ./' <*' 1!3<0(3*1',/(' 70<;!-' *07*43*3' &41' 2*' 7&!1' &A&5' !4./' .2*' .(*&30(!*3' /,' .2*' 3*=*(&;' &0.2/(!.!*3' A2&.' A&3' 4*-*33&(5',/('70(7/3*3'/,'&16!4!3.(&.!/4' !4' .2*!(' (*37*-.!=*' 1*7&(.6*4.3' *' &;3/' 7(/=!1*1' .2*',0413'=/.*1'<5' .2*' 7*/7;*',/(' *0.(&/(1!4&(5'70(7/3*3' 8@9' 2*' 3&6*' 4&6*' A&3' &;3/'</(4*'<5' .2*' .*4' .(*&30(*(3'/,' .2*' >/11*33' .2*4*' A2/' 2&1' .2*' -&(*' /,' .2*' .(*&30(*'/,' .2*' >/11*33' A2!-2' A&3' D*7.' !4' .2*' !44*(' -2&6<*(' /,' .2*' &(.2*4/4' <*F 3!1*3' .2*' .&.*' .(*&30(*' A2!-2' 8&--/(1!4>' ./' .2*' /(1!4&(5' &--/04.9' A&3' D*7.' !4' .2*' 3&6*' 7;&-*' 2*5' A*(*' *;*-.*1' &440&;;5'<5' ;/.' /4*',(/6'*&-2' /,' .2*' (- ' 8 9' !6!F ;&(;5' A*' 2&=*' &' </&(1' /,' .*4' (*>0;&(;5' -/43.!.0.*1' .(*&30(*(3' ./' C'2*' (*3.' /,' .2*' >/13' 2*!('10.5'A&3' ./' 6&4&>*' .2*' 3&-(*1 .(*&30(*3'A2!-2'!4'*&(;!*(' .!6*3'A*(*'D*7.' !4' .2*' 3*7&(&.*' .*67;*3'<0.' !4' C$R' A*(*' .(&43,*((*1' ./' .2*' &(.2*4/4' f8C9' 41*(' .2*' .!.;*' /,' ' "' A*' (*&1' /,' &' ,!4&4-!&;' /,,,!-*(' /,' .2*' A&(' 1*7&(.6*4.' *' A&3' 7(/<&<;5' &77/!4.*1' &,.*(' .2*' *;/7/44*3!&4' &(' !4' 7;&-*' /,' .2*' (" 9(6<616' *3!1*3' 2!3' 10.!*3' !4' -/44*O!/4' A!.2' .2*' A&(' 1*7&(.6*4.' 2*' 2&1' &' 32&(*' !4' .2*' 6&4&>*6*4.' /,' .2*' &4&"' .2*4&!-' ,*3.!=&;' 8 (!3./;*' $ " "' ' ("\' CT9g

&4.J;03' 'A*&;.25'D!4>'/,' !75;03'!4' 2(5>!&'8/(' 51!&9' 3/4' /,' L*03' &41' ;0./' ,&.2*(' /,' ;/73' &41' ;?<*' >(&41,&.2*(' /,' .(*03' &41' 25*3.*3' 3' .2*' ,&=/0(!.*' /,' .2*' >/13' 2*' A&3' &;;/A*1' ./' .&D*' 7&(.' !4' .2*!(' 1*;!<*(&.!/43' &41' ./' 32&(*' .2*!('6*&;3" <0.' 2!3' >//1' ,/(.04*' 6&D!4>' 2!6' /=*("' <*&!4>' 2*' !430;.*1' .2*6' &41' A&3' .2(/A4' !4./' &(.,.(03' 2*' .(&1!.!/43' 1!,,*(' &3' ./' .2*' 4&.0(*' /,' <!3' 6!31*6*&4/0(' --/(1F !4>'./' /4*' 2*' 70<;!-;5' (*=*&;*1' .2*' 3*-(*.' 1*-(**3' /,' L*03' &4/.2*(' (*;&.*3' .2&.' 2*' 70(;/!4*1' 4*-.&(' &41' &6</3!&' ,(/6' .2*' .&<;*' /,' .2*' >/13' ./' 1!3.(!<0.*' ./' 2!3' ,(!*413" &' .2!(1' .2&.' 2&=!4>' !4=!.*1' .2*' >/13' ./' &' (*7&3.' 2*' 3*.' <*,/(*' .2*6' .2*' ,;*32' /,' 2!3' 3/4' *;/73' A2/6' 2*' 2&1' -0./' 7!*-*3' &41' </!;*1' !4' /(1*(' ./' .*3.' .2*!(' /64!3-!*4-*" A2!;*' &--/(1!4>' ./' &' ,/0(.2' 2*' 7*(K0(*1' 2!63*;' !4' /(1*(' ./' (*.&!4' 7/33*33!/4' /,' .2*' >/;1*4' 1/' 3./;*4',/(' 2!6' ,(/6' .2*' .*67;*' /,' L*03'<5' &41J(???3#2 ' /6*(' # ' O!' VTNg' 1*3-(!<*3' 2!6' &3' 30,,*(F !4>' !4' .2*' A/(;1' <*;/A' ,(/6' 04&77*&3*1' 204>*(' &41' .2!(3.' <*!4>' &.' .2*' 3&6*' .!6*' !66*(3*1' !4' A&.*(' ./' .2*' -2!4' A2!;3.' .2*' ,!4*3.',(0!.3' 2&4>'<*,/(*' 2!3' *5*3' 2*4F *=*(' 2*' /7*43' 2!3' 6/0.2' ./'*4K/5'.2*'(*7&3.' .2*' A&.*(' 1(!*3' 07' &41' .2*' ,(0!.3' =&4!32' !4./' .2*' &!(' A2!;*' &</=*' 2!3' 2*&1' 2&4>3' &' 20>*' (/-D' A2!-2' !3' *=*(' .2(*&.*4!4>' ./' ,&;;' &41' -(032' 2!6' # ' ' " ' / ' - &' 9' 0(!7!1*3' -/6<!4*1'</.2';*>*413

D(&O!7703' ' 1*6/4'A2/'-&03*1'2/(3*3' ./'325' # ' / &

&(.&(03' --/(1!4>' ./' .2*' *&(;!*3.' (**D' =!*A3' &' 1&(D' &<533' A2,-2' ;&5' &3',&(' <*;/A'.2*' 30(,&-*' /,' .2*' *&(.2' &3' .2*' *&(.2' !3',(/6' .2*' 2*&=*43' </=*' &(.&(03' A*(*' .2*',041&.!/43'/,' .2*' *&(.2'&41'3*&' .'A&3' 30((/041*1'<5'&4'!(/4'A&;' A!.2'!(/4'>&.*3' 3*.' 07'<5' 3*!1/4' &41'<5' &' .(*<;5' .2!-D' ;&5*(' /,' 4!>2.' &41'!.' 3*(=*1'&3' .2*' 7(!3/4'/,' .2*' 1*.2(/4*1' (403'&41'/,' .2*' -/4:0*(*1' !.&43' A2/' A*(*' >0&(1*1'<5' .2*' ("2

-/04.(5 4/. 7/33*33!4> ;&41 7&!1 &,.*(&' -*(.&!4 &>* 8@N"@V 5*&(39 & 7/;; .&0 # 2
  .2* &6/04. /, A2!-2 A&3 ,!0*1 <5 !67*(!&; /(1!4&4-* &41 ,/(A/6*4 A&3 &</0. 2&;, .2* 306 !67/3*1 /4 6*4 !.!Q*43 (*3!1*4. !4 ./A43 &41 4/. 7/3F 3*33!4> ;&41 7&!1 & .&0 7&(.;5 /4 .2*!(' A/(D!4> -&7!.&; &41 /4 .2* .(&1* !.3*;, 2* .&0*3 &77/(.!/4*1 ./ *&-2 ./A4 5(!.2 !.3 1!3.(!-.3 A*(* (&!3*1 <5 . D -/;;*-./(3 & - <0. .2* " /(' 6*6<*(3 /, .2* 604!-!7&; 3*4&.*3 & 0) ( )& A*(* (*37/43!<;* ,/(' .2* &6/04. &41 2&1 ./ &1=&4-* !. .2*63*;(*3 &0!&(-2! 2* (**D .*(6 ,/(' &-/6F 6&41*(' /, & - A2!-2 -/4.&!4*1 & =&(!&<;* 406<*(' /, 6*4 4 .2*43 .2* .*4 -/66&41*(3 /, .2* .*4 - A*(* 3/ -&;;*1 2*5 *(* *;*-.*1 &440&;;5 <5 32/A /, 2&413 /4* ,/(' *&-2 .(!<* 2*5 &;3/2&1 ./ ;//D &,.*(' .2* ;*=5!4> &41 1!3F .(!<0./4/ /, (*-(0!.3 &41 .2*5 A*(* .203 -/4-*(4*1!4 .2* 1(&A!4> 07 /, .2* (*>!3.*(' /, .2/3* -!.!Q*43 A2/ A*(* ;!&<;* ./ 3*(=* 4 .2* &-*1/4!&4 ,&&K,3 # ,.K!> .* 4* /, .2* -= # />$ *6*33& &0>2.*(' /, .2* 2(5>!&4 D!4> *0.2(&3 6/.2*(' /, 0(53&-*3 <5 K&O 3/4 /, - = & @9 *!(?3]&3 + 2* ,&6/03 <;!41 3//.23&5*(' /, 2*<*3 3/4 /, 0*(*3 &41 2&(;-;/ &41 &1*3-*41&4. /, .2* 7&(F .&4 13*03 2*-&03* /, 2!3 <;!414*33 2&3 <**4 =&(!/03;5 3.&.*1 --/(1!4> ./ /4* .(&1!.!/4 .2* >/13 .//D 2!3 3!>2. &A&5 A2*4 2* A&3 3*=*4 5*&(3 /;1 <*-&03* 2* (*=*&;*1 ./ 6*4 .2!4>3 A2!-2 .2*5 /0>2. 4/. ./ 2&=* D4/A4 --/(1!4> ./ &4/.2*(' 2* <*-&6* <;!41 A2*4 /4 2!3 3**!4> .2*4* !4 .2* <&.2 32* 37;&32*1 A&.*(' !4./ 2!3 *5*3 2*4 !4=/D*1 <5 2!3 6/.2*(' .2* >/11*33 -/0;1 4/. (*3./(* 2!3 3!>2. <0. <4F 10*1 2!6 A!.2 &D4/A;*1>* /, .2* ;&4>0&>* /, <!(13 &41 7(*3*4.*1 2!6 A!.2 &3.&, <5 6*&43 /, A2!-2 2* /0;1 A&;D ;!D* &6&4 A!.2 7*(,*-. =!3!/4 --/(1!4> ./ &.2!(1 &--/04. 2* A&3 <;!41*1 <5 *(& <*-&03* !4 &1!370.* <*.A**4 2*(' &41 L*03 2* 1*-!1*1 &>&!43.2*(' &41 L*13 -/67*43&.*1 2!6 <5 >(&4.!4> 2!6 .2* >!,. /,7(/72*-5 &41 &;!,* 3*=*4 8/(' 4!4*9 .!6*3 &3 ;/4> &3 .2&. /, /.2*(' 6*4 * !3 &;3/ 3&!1 ./ 2&=* <**4 -2&4>*1 !4./ & /6&4 ,/(' &32/(. .!6* * 7;&53 &4 !67/(.&4. 7&(. !4 .2* 3./(5 /, X ! 703 &41 .2* A&(3 &>&!43. 2*<*3 4 .2* A&(3 /, .2* " 1 " + (2* 1*-;&(*1 .2&. .2* 2*<&43 A/0;1 <* =!-./(!F /03 !, (*/43 3/4 4/*-*03 A*(* ./ 3&-(!F ,!-* 2!63*;, 4 .2* A&(' /, .2* 9 1 " 2/ &1=!3*1 .2* 2*<&43 ./ *4.*(' !4./ 4*>/.!&F .!/43, /(' 7*&-* &41 ./ &=&!;.2*63*;=*3 /, .2 I /77/(.04!.5 .203 &,,/(1*1 ./ .&D* ./ ,;!>2. 0(!4> .2* ,;!>2. /(' *;3* &. .2* 7!>/4! 2* A&3 6&1* &7(!3/4*(' &41 A!.2 2!3 1&0>2.*(' &4./ & A2/ &;3/ 7/33*33*1 .2* >!, / ,7(/72*-5 A&3 -/43*-(&.*1 ./ .2* 3*(=!-* /, .2* *;72!&4 7/;;/ *1 1!*1 &. .2* A*;; !;72/33& 4*&(' &;;&(.03 A2*(* 2!3 >(&=* A&3 7/!4.*1 /0. A2!;* 2* A&3 &;3/ 2/4/0(*1 <5 &-*4/.&72 !4 2*<*3 /6*(' f 1 0! TN"$?$g (*7(*F 3*4.3 2!6 &3 -&((5!4> 2!3 >/;1*4 3.&,; &3"" 3//.23&5*(' *=*4 !4 .2* A/(;1 <*;/A 2*4 1533*03 -/430;.3 2!6 &3 ./ 2!3 A&5 2/6 *" &41 /, &;; .2* 32&1*3 2* &;/4* <5 6=/0(' /, *!3`72V4* 7/33*33*3 04!67&!(*1 6*6/(5 &41 !4.*;;*-.% 0 CTVg * 2&1 &4 /(&-; & (-2V6V403 !4 /*/.!& A2!-2 !3 3&!1 ./ 2&=* -*&3*1 ./ >!=* (*37/43*3 &,.*(' &7;&>0* V$C6/4 /4 7, E1-43 &41 41* 3 &41 <(/.2*(' /, >;*03 &=!4> &33!3.*1 *;*03 !4 60(1*(!4> .2*!(' 2&;,"<(/.2*(' 2/-03 2I A&3 *07*;;A ,(/6 ! >;4& <5 2!3 ,&.2*(' &41 A&3 (*-*!=*1 <5 *4-2(*03 /, & 6 3 A2/3* 1&0>2.*(;&0-` <*-&6* 2!3 A!,*" &41 /4 .2* 1*&.2 /, *4-2(*03 *;&6/4 <*F -&6* D!4> /, &;&6!3 5 2!3 3*-/41 A!,* (!</*& 1&0>2.*(' /, ;- .2 !!3 2* <*-&6* ,&.2*(' /, K&O * A&3 /4* /, .2* 2*(/*3 A2/ K/!4*1 !4 .2* &;51/4!&4 04 &41 &;3/ /4* /, .2* (>/4&0.3 * ,0(.2*(' .//D 7&(.!4 .2* *07*1!.!/4 /, 2!3 ,(!*41 *(&-;*3 &>&!43. .2* 6&Q/43 &41 &>&!43. & 6*1/4 /, (/5 .2* -/4:0*3. /, (/5 2* A&3 .2* ,!(3. ./ 3-&;* .2* A&;;3 &41 .2&. 2* 1!1 &. .2* =*(5 37/. A2*(* !. A&3 <0!;. <5 2!3 ,&.2,,K 3 2!3 32&(* !4 .2* 37/!; *(&-;*3 >&=* 2!6 .2* D!4> 3 1&0>2.*(' /, *0/*(' & @9 *;-2!4 3 7(!6*=&; 7*/7;* 37(04> ,(/6 .2* 3*& &41 ;!=!4> /4 .2* !3;&41 /, 2/1*3 2*5 &(* 3&!1 ./ 2&=* <**4 .2* *&(;!*3. A/(D*(3 !4 6*.&; &41 ./ 2&=* 6&1* !6&>*3 /, .2* >/13 ./>*.2*(' A!.2 .2* 3!-D;* /, (?403 &41 .2* .(!1*4. /, 3*!1/4 /3*!1/4 !3 3&!1 ./ 2&=* <**4 *4.(03.*1 ./ .2*6 <5 2?&. ./ <* <(/0>2. 07 K03. &3 L*03 A&3 ./ .2* (*.>3 /, (*.* 2*5 A*(* &;3/ (*7(*3*4.*1 - *4=!/03 3/(-*(*(3 &41 1*6/43 A2/ A*(* *4*6!*3 /, </.2*>/13 &41 6*4 2*5 A*(* .2*(*,/(* D!;;*1 <5 7/;;/ /(' &--/(1!4> ./ &4/.2*(' &--/04. 1*3.(/5*1 <5 L*03 !4 &4 !4041&.!/4 --/(1!4> ./ &.2!(1 &--/04. .2!3 !4041&"

-/43*:0*4-*' /,'&4' *&(.2:0&D*' !4' .2*' .!6*' /,' A&(9' 2*' A&3'&;3/' !4=/D*1' !4' 3/;*64' /&.23' &3' .2*' -/66/4' >(&=*' /,' &;;' .2!4>3' ./>*' .2*('A!.2' .2*' &4`3'&41' A!.2' 07!.*(' .2*' >/1' /,' 2*&=*4' !D*' .2*' (**D' *6*. (' 32*' A&3' &;3/' .2*' >/11*33' /,' 6&((!&>*' <0.' A&3' 6/3.' (*=*(*1' !4' -/4K04-.!/4' A!.2' j(3'&3' >/11*33' /,',(0!.,0;4*33' .203' !4' 2*(' 2/4/0(' A*(*' 2*;1' .2*' ,*3.!=&;' /,' .2*' 3/A!4>' # @ ' " ' -*;*<(&.*1' !4' &40&(5'&.'.2*' *41' /,' .2*' A!4.*('3**1' .!6*' ,!K-*1' <5' .2*' " -' ./' <*' 2*;1' /4' .A/' -/43*-0.!=*' 6&(D*.' 1&53' 2*' 1 "$&d' A*(*' -*;*<(&.*1' &.' .2*' 3&6*' .!6*' !4' .2*' -/04.(5'A2*4'&'7(*>4&4.'3/A'A&3'3&-(!,!-*1' ./' *;;03' &41' *7*3' *3!1*3' .2*3*' .2*(*' A&3' .2*' ,*&3.' /,' ' ( ) ' &.' A2!-2' -/A3' !4' -&;,' # ' A*(*' 3&-(!F ,!-*1' ./' 2*(' 2!3' A&3' 2*;1' /4' .2*' $V.2' /,' 7(!;' ./' !430(*' 7;*4.5' 10(!4>' .2*' 5*&(' &41' A&3' -*;*<(&.*1' 041*(' .2*' 6&4&>*6*4.' /,' (' " ' '&41' .2*' *3.&;' !(>!43' 7&(.;5' /4' .2*' &7!./;' !4' .2*' .2!(.5' E ' &41' 7&(.;5' /0.3!1*' .2*' ./A4' 2*' &32*3' /,' .2*' 04</(4' -&;=*3' A*(*' D*7.' <5' .2*' *3.&;' !(>!43' .!;;' .2*' ,*&3.' /,' .2*' , < ' & ' A2*4' .2*5' A*(*' 03*1' ,/(' .2*' 70(F 7/3*' /,' 70(!,!-&.!/4' *3!1*3' .2*' ,*6&;*' 1*!.5' &' >/1' + ' A&3' &;3/' A/(32!77*1 J$V43' 8 (' G" ' ;!.' H <05*(3' /(' .2*' .&0*3' I9% 6/4>' .2*' .2*4!&43' .2*3*' A*(*' .2*' ,&(6*(3' /,' .2*' .&0*3' &41' !67/3.' A2!-2' A*(*' 4/.' -/;;*-.*1' <5' .&.*' /,,!-*(3' <0.' A*(*' 3/;1' &.' -*(.&!4' .!6*3' <5' &0-.!/4' ./' .2*' 2!>2*3.' <!11*(' 6&;;*(' .&0*3' A*(*' .&D*4' 07' <5' 3!4>;*' 7*(3/43' A2/' -/;;*-.*1' .2*' 6/4*5' .2*63*;=*3' /(' ;&(>*(' .&0*3' 1*6&41!4>'&';&(>*' -&7!.&;' -/67&4!*3' A*(*' /,.*4' ,/(6*1' (*7(*3*4.*1' <5' /4*' 7*(3/4' -&;;*1' .2*' " (' A2/' -/4-;01*1' .2*' -/4.(&-.'A!.2' .2*' .&.*' 0(*.!*3'2&1' &;3/' ./' <*' 7(/10-*1' /4' .2!3' /--&3!/4' 0-2' -/67&4!*3'*67;/5*1' 30</(1!4&.*' /,,!-*(3' ./' -/;;*-.' .2*' .&0*3' 2*' 7&56*4.3'A*(*' 6&1*' <5' .2*' ,&(6*(3' &.-*(.&!4' 7*(!/13' &.' .2*' 3*4&.*"2/03*' /(' "' &41' /4*' 7&5F 6*4.' A&3' 030&;;5' 6&1*' !4' &1=&4-*' A2*4' .2*' -/4.(&-.'A&3' 6&1*' 4' 1*,&0;.' /,' 7&5F 6*4.' .2*' ,&(6*(' <*-&6*' +" ' &41' !4' -*(.&!4' -!(-063.&4-*3' 6!>2.' <*'!67(!3/4*1' ,' .2*' 1*<.' A&3' 4/.' 7&!1' <5' .2*' *07!(&.!/4' /,' .2*' T.2' 8 : " ' !.' A&3' 1/0<;*1' &41' .2*' 7(/7*(.5'/,' .2*' 1*<./(' &41' 2!3' 30(*.!*3' -/4,!3-&.*1' 2*' ' 1*3-*41*1' ./' .2*' -2!;1(*4' 04.!;' .2*' 1*<.' A&3' 7&!1' 4' .2*' /.2*(' 2&41' .2*' ,&(6*(' A&3' 7(/.*-.*1' <5' .2*' .&.*'&>&!43.',(&01'<5'3*=*(*';&A3' *' A&3' &;3/' *0*67.',(/6' 6!;!.&(5' 3*(=!-*' 3/' .2&.' 2*' 6!>2.'4/.'<*' 2!41*(*1' !4' 7*(,/(6F !4>' 2!3' 10.!*3' /(' .2*' 3!6!;&(' !43.!.0.!/4' &6/4>' .2*' /6&43' ') ' (*67;*3' 4' &4-!*4.' .!6*3' .*67;*3' A*(*' (*>&(1*1' &3' .2*' 1A*;;!4>"7;&-*3' /,' .2*' >/13' ./' A2/6' .2*5' A*(*' 1*1!-&.*1' 2*5' 6!>2.' -/4.&!4' &4' !6&>*' /(' 4/.' <0.' .2*' ;&..*(' -&3*' A&3' *0-*7.!/4&;' 3' .2*5' A*(*' 4/.' 2/03*3' /,' 7(&5*(' !4.*41*1' ,/(' .2*' 1*=/.!/4' /,' &40 6*(/03' -/6 6 04!.5' .2*5' A*(*' 030&;;5' /,' =*(5';!6!.*1' *0.*4.' 2*(*' A*(*' 2/A*=*(' .*67;*3' /,' -/43!1*(&<;*' 3!0*' &6/4>' A2!-2' A&3' .2&.' /,' (.*6!3' !4' 72*303' C R' ,**.' ;/4>' <5' @@?' <(/&1' ' .2&.' /,' *(&' !4' &6 3' .2&.' <*>04' <5' !3!3.(&.03' &41' ,!4!32*1' <5' &1(!&4' &41' 1*1!-&.*1' ./' L*03' ;567!03' !4' .2*43'& 5 & :&'' &41' .2*' .*67;*' /,' L*03' /,' >(;>*4.06' A2!-2' A&3' 4*=*(' :0!.*' -/67;*.*1' ;;' /,' .2*3*' A*(*' &;F 6/3.'&3';&(>*' &3' .2*' ,!(3."6*4.!/4*1' 4;5' .*67;*3';!D*' .2&.' &.' ;*03!3' !4' A2!-2' .2*' -*;*<(&.!/4' /,' 653.*(!*3' ./!D' 7;&-*' A*(*' !4.*41*1' ./' &--/66/1&.*' &';&(>*(' 406<*(' /,' 7*/7;*' 2*' >(*&.' 3&-(!,!-*3' &41' <&4F :0*.3' 32&(*1' <5'&;' .2*' 7*/7;*' A*(*' -*;*F <(&.*1' !4' .2*' -/7(./,' .2*' .*67;*' 8 (' "2' (' A2!-2' !4-;01*1' .2*' &;.&('3&-(!F ,!-*' &41' A&3' !.3*;' 30((/041*1' <5' &' A&;;' A!.2' /4;5' /4*' 7;&-*' /,' *4.(&4-*' .' A&3' &' ,*&.0(*' -/66/4' ./' &;;' .*67;*3' .2&.' .2*5' *(*' 4/.' <0!;.' 1!(*-.;5' /4' .2*' 30(,&-*' /,' .2*' >(/041' <0.' A*(*' (&!3*1' /4' &' 30<"3.(0-F .0(*' A2!-2' A&3' 6/04.*1' <5' 6*&43' /,' &4' 04*=*4' 406<*(' /,' 3.*73' 3/' .2&.' 7*/7;*' A*(*' &<;*' &3' &'>//1' /6*4' ./' 70.' .2*!(' (!>2.' ,//.' /4' .2*' ,!(3.'&41';&3.' 3.*7 2*' 030&;' 32&7*' /,' (**D' .*67;*3' A&3' &4' /<;/4>' &</0.' .A!-*' &3' ;/4>' &3' A!1*' &.' .2*' ,(/4.' &41' <&-D' /,' A2!-2' A&3' &' 7*1!F 6*4.' /(' >&<;*"(//,' 8 (' ' /(' $ # &.' 1 ' /041' .*67;*3' A!.2' 1/6*"32&7*1' (//,3' A*(*' :0!.*' 6*' *0-*7F .!/4' 2*' 7(!4-!7&;' 7&(.' /,' .2*' .*67;*' A&3' .2*' -2&6<*(' -/4.&!4!4>' .2*' !6&>*' /,' .2*' >/1' 2!3' 3.//1' /4' &' 7*1*3.&;' A2!-2' A&3' /,.*4' 7;&-*1' !4' &' 36&;;' 4!-2*' &41' 030&;;5' 3./1',&-!4>' .2*' -&3.' /77/3!.*' ,/;1!4>"1//(3' A2!-2' &;A53' /7*4*1' /0.F A&(13' *,/(*' .2*' !6&>*' 3./1' &4' &;.&(' 0 *1',/(' 04<;//15' 3&-(!,!-*3' 2!3' 72&6*' <*(' -&;;*1' !4' (**D' " ' &41' !4' &.!4' >*4*(&;;5' (*-*!=*1' !.3' ;!>2.' .2(/0>2' .2*' 1//(' &;/4*' <0.' 3/6*.!6*3' .2*(*' A&3' &;3/' &4' /7*4!4>' !4' .2*' (//,' 2*(*' A*(*' &;3/' .*67;*3' 1*3!>4&.*1' (: (' 8,(/6' ((' P' !4' .2*' /7*4' &!('!9''!' !4' .2*3*' .2*(*' A&3' 4/' (//,' ./' .2*' 6!11;*' -2&6<*("

¢' f !.(0=!03'!!!;'$ @@' 2*' ..!-',/(6'!3' ! (. =9

K2&.' .2*5' -/((*37/41' !4' 7/3!.!/4' ./' .2*'
B.Y(!/(' (&4>*' /,' .2*' 1!7.*(&;' .*67;*
--/(1!4>' ./' .2*' 406<*(' /,' -/;0643' !4'
,(/4.' A2!-2' 603.' &;A&53' <*'Y4' *=*4' 406F
<*(' 3!4-*' .2*' *4.(&4-*' A&3' !4' .2*' 6!11;*'
!.' !3' 030&;' ./' 1!3.!4>0!32' .*67;*3' &3' 2'
(- 2:' 2' 2' /(' S <K : /' 8A!.2'
C ?' R $N' /(' $@ -/;0643 9' 2*' 406<*(' /,'
-/;0643' &;/4>' *&-2' 3!1*' A&3' 030&;;5' /4*'
6/(*' .2&4' .A!-*' .2*' 406<*(' &;/4>' .2*'
,(/4.' <0.' .2!3' A&3' 4/.' .2*' !4=&(!&<;*' (0;*'
/(' .2*' ('&41' ,/(' .2*' -/;0643' /,'
.2*' 1!,,*(*4.' ' '77'?U' VR' 2*'
Q' (*3.!4>' /4' .2*' &(-2!.(&=*' &41' 8!4'
.2*' /(!-'/(1*(9 .2*' '!4' 7&(.!-0;&('
8 0 9 &3A*;;&3' .2*' .A/'7*1!6*4.3'8 ('
" 'A*(*'1*-/(&.*1' A!.2' 3-0;7.0(*3' &41'
.2*3*' 3-0;7.0(*3' &3' A*;;' &3' .2*' A&;;3' /,' .2*'
.*67;*' /,..*4' 2&1' &' 6/(*' ;!,*";!D*' &41' 6/(*'
=&(!*1' &77*&(&4-*' >!=*4' ./' .2*6' <5' &77(/F
7(!&.*' -/;/0(!4>' 2*' -/7!4>' /,' .2*' (//,'
&3' A*;;' &3' .2*' &4>;*3' /,' .2*' 7*1!6*4.' A*(*'
(4&6*4.*1' <5' 'A2!-2' -/43!3.*1'
/,' 3.&.0*3' =&3*3' /(' " ('8>(/073' /,'
,;/A*(3' &41' ;*&=*3" ' -0.' ./' ' '
- . 9
4' .2*' 7;&4' /,' .2*!(' .*67;*3' .2*d - & '
/(!>!4&;;5' ,/;;/A*1' .2*' .(03-&43 # ' & '
' <*;/A9' 2*' >(/041"7;&4' /,' .2*'
.(03-&4' .*67;*' A&3' 4*&(;5' &' 3:0&(*' .2*'
(&.!/' /,' .2*' 1*7.2' ./' ,(/4.&>*' <*!4>'?\V'
&;,' /,' .2*' 37&-*' A&3' .&D*4' 07' <5' .2*'
-*;;&' &41' .2*' (*3.' <5' .2*' -/;0643' 2*'
&(-2!.(&=*' A&3' /,' A//1' &41' A!.2/0.' &45'
37*-!&;' ,(!*0*' 2*' >(*&.' .*67;*' A!.2'
.2(**' '/4' .2*' /6&4' &7!./;' A&3'
<0!;.'!4' .2*' .(03-&4' 3.5;*' .2*' 6!11;*' &41'
;&(>*3.' '<*!4>' 3&-(*1' ./' 07!.*(' &41'
.2*' 36&;;*(' /4*3' /4' *!.2*(' 3!1*' ./' !4*(=&'
&41' 04/' #$ ' 3 ' 41*(' (**D'
!4,;0*4-*' .2*' 1!,,*(*4.' ,/(63' /,' .2*' (**D'
.*67;*' <*>&4' ./' <*!6!.&.*1' &.' /6*' .2*'
6/3.' 7(*=&;*4.' .B7*' <*!4>' .2&.' 1*3-(!<*1'
&3' : 'A2!-2' ;*4.' !.3*;;' 6/3.' *&3!;5'
./' .2*' (*:0!(*6*4.3' /,' &' '!4' .2*'
3.(!-.' 3*43*' /,' .2*' .*(6' ! '!67/(.&4.'
&;.*(&.!/4' !4' .2*' (**D' ,/(6' /,' .*67;*'
A&3' <(/0>2.' &</0.' <5' .2*' !4.(/10-.!/4' /,'
=&0;.*1' &(-2*3' /(' >(/!4*1' -*!;!4>3' A2!-2'
A*(*'3*;1/6'03*1' <5' .2*' (**D3' &41' 4*=*('
/4' &' ;&(>*' 3-&;*' <0.' A*(*' <(/0>2.' ./' >(*&.'
7*(,*-.!/4' <5' .2*' /6&43' 2*5' .//D' .2*'
,/(6' /,' &' -5;!41(!-&;' =&0;.!4>' !4' .2*' -&3*' /,'
&' :0&1(&4>0;&(' '&41' &' 1/6*' !4' .2*'
-&3*' /,' .2*' (/041' .*67;*3' A2!-2' A*(*'
,(*: *4.' A!.2' .2*' /6&43' 2*' .A/'7(!4F
-!7&;' ,/(63' /,' .2*' ;&..*(' &(*' 8$9' .2*' " 2
/' A2!-2' -/43!3.*1' /,' &' 3!4>;*' -!(-;*'
/,'-/;0643' 3.&41!4>' /4' &' 7;&.,/(6' 6/04.*1
<5' 3.*73' &41' 3077/(.!4>' .2*' -/;0643' A2!-2'
</(*' &' 1/6*' /4' &' -!(-0;&(' &(-2!.(&=*' 8@9'
2*' ' A!.2' .2*' 3&6*' &((&4>*F
6*4.' /,' -/;0643' <0.' A!.2' &' -!(-0;&(' '
!4' .2*' 6!11;*' A2!-2' A&3' -/=*(*1' <5' &'
1/6*' (!3!4>' ,(/6' .2*' 30((/041!4>' -/;/4F
4&1*' 4' &' .2!(1' =&(!*.5' /,' A2!-2' A*' 2&=/'
&4' *0&67;*' !4' .2*' , " ("' # ' .2*'
-!(-0;&(' </15' /,' .2*' <0!;1!4>' !3' 4/.'
30((/041*1' <5' -/;0643' *0.*(4&;;5' <0.'
/4;57(/=!1*1' /4' /4*' 3!1*' A!.2' &4' &1=&4-*1'
7/(.!-/
67;06' 2' /6&4' .*(6' ,/(' &' 37&-*'
6&(D*1' /0.' <5' .2*' &0>0(3' # ')) '
&--/(1!4>' ./' &' -*(.&!4',!0*1' 7(/-*10(*' .3"
>(/041"7;&4' A&3' &' 3:0&(*' /(' (*-.&4>;*'
2&=!4>' !.3',/0(' 3!1*3'.0(4*1' ./' .2*' 1!,,*(*4.'
7/!4.3' /,' .2*' -/67&33" !.3',(/4.' 2/A*=*('
&--/(1!4>' ./' 3.(!-.' /6&4' -03./6' ,&-*1'
./A&(13' .2*' A*3.' 3/' .2&.' &45' /4*' *4.*(!4>"
.2*' .*67;*' 2&1' 2!3',&-*' .0(4*1' ./A&(13' .2*'
&3.' .' A&3' 4/.' 04.!;' ;&.(' .2&.' .2*',(/4.'
A&3',(:0*4.;5' 6&1*' ./',&-*' .2*' *&3.' 2*'
<0!;1!4>' *(*-.*1' /4' .2!3' 37&-*' &41' -/(F
(*37/41!4>' ./' !.' !4' 7;&4' 1!1' 4/.' <*-/6*' &
" '/(' 3&4-.0&(5' /,' .2*' >/13' 04.!;' !.'
2&1' <**4' -/43*-(&.*1' <5' .2*' "
' (
3' 2/A*=*(' .2*(*' A*(*' @' A2!-2' A*(*'
4/.' ' *>' &;' -!(-0;&(' <0!;1!4>3' 3/'
.2*(*' A*(*' A2!-2' A*(*' 4/.' " '
,' .2!3' 3/(.' A*(*' .2*' 7;&-*3' @(K 70<2*'
&,,&!(3' A*(*' .(&43&-.*1' 30-2' &3' .2*' '
!7' .2*' /(06' .2*' 7;&-*3' A2*(*' .2*' '
6*.' /(' .2*' *4&.*' &33*6<;*1' &41' *=*4' .2*'
-!.5' /,' /6*' !.3*;,' 2*' 3&4-.0&(!*3' /,'
.2*' >/13' A*(*' 1*3!>4*1' &3' '!,' .2*5'
A*(*' !4.*41*1' ./' 3*(=*' ,/(' 6**.!4>3' /,'
.2*' *4&.*' &41' !,' .2*' ,/(6' /,' A/(32!7'
7(*3-(!<*1' ,/(' 30-2' 3&4-.0&(!*3' A*(*' &7F
7(/7(!&.*' ./' .2*' 1*,!4!.!/4' /,'&'
*40*3' 8/(' + " '3/4' /,' 5-403' 8> 0'
@9' *' 8A!.2' 2!3' 3!3.*(' *6;.2?&9' A&3'
.2(/A4' <5' 2!3',&.2*(' !4' &' -2*3.' !4./' .2*'
3*&' !4' -/43*:0*4-*' /,' .2*' 3;&41*(/03'
&--03&.!/43' <(/0>2.' &>&!43.' 2!6' <5' 2!3'
3.*76/.2*(' *' A&3' </(4*' 2/A*=*(' <5'
.2*' A&=*3' ./' .2*' !3;&41' /,' >4>1 3' 83/"
4&6*1',(/6' 2!69' A2*(*' 2*' <*-&6*' D!4>'
' A&3' &,.(A&(13' (*-/4-!;*1' ./' 2!3'
,&.2*(' &41',*;;' A!.2' 2!6' <5' .2*' 2&41' /,'
-2!;;*3' A2*4' .2*',&.2*(' &41' 3/4' &3' &;;!*3'
/,' .2*' /K&43' A*(*' /77/3!4>' .2*' ;&41!4>'
/,' .2*' (**D3' /4' .2*' 32/(*3' /,' 3!&
43&' 2' -2&(!/.' 03*1' ,/(' 7(/-*33!/43'
/(' ,/(' .2*' >/13' &.' .2*' !(-*43!&4' >&6*3'
'"
*7!1&(!06' ' .*7!1' <&.2"(//6' # '
?

"""""""B

3./4*' A&3' -0(3*1' ./>*.2*(' A!.2' 2K3' 1(&0>2.'" -&..;*' &41' &45' /4*' 6!>2.' D!;;' 2!6' A!.2' !6704!.5' &41' A!.2/0.' <*!4>' 1*,!;*1' <5' 2!3' <;//1' 4' ;&.*(' .!6*3' .2*' 704!326*4.' /,' ,!4*3' A&3' !43.!.0.*1' !43.*&1

2*' ,*3.!=&;' /,' .2*' + " ' A&3' -*;*F <(&.*1' !4' /,!!*' &41' !4' .2*' -/04.(5' /4' .2*' @ (1' /,' *<(!.&(5' 2*' 4*!>2</0(3' /4' *!.2*(' 3!1*' /,' &45' </041&(5' >&.2*(*1' (/041' .2*' ;&416&(D' A!.2' .2*!(' A!=*3' -2!;1(*4' &41' 3*(=&4.3' &41' -(/A4*1' !.' *&-2' /4' 2!3' A4' 3!1*' A!.2' >&(;&413' &41' /,,*(*1' -&D*3' &41' <;//1;*33' 3&-(!,!-*3' 4' ;&.*(' .!6*3' 2/A*=*(' &' ;&6<' /(' 30-D!4>' 7!>' A&3' 3/6*F .!6*3' 3;&!4' &41' .2*' 3./4*' 37(!4D;*1' A!.2' .2*' <;//1' &3.;5' .2*' A2/;*' 4*!>2</0(2//1' K/!4*1' !4' &' >*4*(&;',*&3.' ';&6<' A&3' &;3/' 3&-(!,!-*1' !4' .2*' >(/=*' /,' *(6!403' A2!-2' &3' 3!0' /6&4' 6!;*3',(/6' /6*' 4*&(' .2*' &4-!*4.' </(1*(' /,' .2*' ./A4' /,' &0(*4.06' 4' .2*' &7!./;' .2*(*' A&3' &' 3./4*' 1*1!-&.*1' ./' + " ' A2!72' 2&1'"/(!>!4&;;5' 3.//1' !4' .2*' 7*4' &!(' <.!.' A2*4' .2*' .*67;*' /,' 07!.*(' A&3',/041*1'<5' .2*' ;&3.' D!4>' &(" :0;4;03' !!7*(<03' !.' A&3' !4-;/3*1' A!.2!4' .2*' <0!;1!4>' &3' .2*' &0>0(3' A/0;1' 4/.' &;;/A' !.' ./' <*' (*6/=*1

(7&41(' 8 (' + " ' ' (**D' 7/*.' &41' 603!-!&4' &' 4&.!=*' /,' 4.!33&' !4' *3< 3' *' !3' .2*' .(0*' ,/041*(' /,' (**D' -;&33!-&;' 603!-' &41' &;3/' /,' ;5(K-' 7/*.(5' </.2' /;!&4' &41' /(!&4' ;!*' A&3' .2*',!(3.' ./' -;/.2*' !4' &(.!3.!-',/(6' .2*' D!41' /,' -2/(&;' 3/4>' -&;;*1' " ' 03*1' &.' .2*' ,*3.!=&;3' /,' 7/;;/" 2*' &;3/' !4.(/10-*1' /.2*(' !67/(.&4.' !44/=&.!/43' !4./' 603!-' *' !3' 3/6*.!6*3' *(//4*/03;5' 1*3-(!<*B' &3' 2&=!4>' &11*1' .2(*' 3.(!4>3' ./' .2*' /(!>!4&;' ;5(*' /,' ,/0(' 3.(!4>3' P .(& ' 7' ?;Rg" <0.' !.' !3' 6/(*' 7(/<& *' .2&.' .2*' ;5(*' /,' 3*=*' 4' 3.(!4>3' A&3' &;(*&15' !4' *0!3.*4-*' !4' 2!1' /A4' .!6*' f (!3./.;*' , ' 0!0' @g' 2*' 7(!4-!7&;' 3-*4*' /,' 2!3' ;&</0(3' A&3' 7&(.&' A2!.2*(' 2*' 2&1' <**4' 306 6/4*1'<5'/(1*(' /,' .2*' *;72!-'/(&-;*' ./' :0*;;' &' 1!3.0(<&4-*' &6/4>3.' .2*' 7*/7;*' .' A&3' &.' 7&(.&'.2&.' 2*' (*10-*1' ./' /(1*(' .2*' 603!-' /,' .2*' /(!&43' .' A&3' 2*(*' ./' .2&.' 2*' A/4' .2*' 7(!Q*' &.' .2*' 603!-&;' /6F 7*.!.!/4' &.' .2*' &(4*!&' *.A**4' ?U@' &41' ?CR' /' 2*' -&((!*1' /,,' .2*' 7(!Q*' ,/0(' .!6*3' !4' 30--*33!/4' &.' .2*' 5.2!&4' >&6*3' !4' *;72!' 4;5' &' ,*A' =*(3*3' /,' 2!3' /A4' 7/*63' &(*' *0.&4.

(73!-2 (' 2' 03*' /,' 1&4-!4>' # ' 0)

*(.0;;;&4038SA. P !R*7.;6; 3 8V(*439' 4*' /,' .2*' 6/3.' !67/(.&4.' /,' .2*' &.!4' &.2*(3' *' A&3' </(4' &.' &(.2&>*' /,' 7&>&4' 7&(*4.3' &</0.' $?N' ' &41' 1!*1 &</0.' @N' ,.*(' (*-*!=!4>' &' -&(*,0;' *10-&./!4' !4' (2*./(!-' &41' K0(!37(01*4-*' 8&41' 7(/<&<;5' 7(&-.!3!4>' &3' &' ;&A5*(9' 2*' *6<(&-*1' 2(!3.!&4!.5' &41' <*-&6*' &' 7(*3<5.*(' !4' 2!3' 4&.!=*' ./A4' ,.*(' 1*F ,*41!4>' 2(!3.!&4!.5' &>&!43.' 7&>&4!36B' 2*' K/!4*1' .2*' &3**.!-' &41' ,&4&.!-' 3*-.' /,' .2*' /4.&4!3.3' &41' <*-&6*' .2*!(' -2&67!/4' &>&!43.' .2*' 20(-2' !3' A(!.!4>3' (*,;*-.' A!.2',&!.2,0;4*33' 2!3' >*4*(&;' &<!;!.5" 2!3' (2*./(!-&;' .(&!4!4>' &41' ;*>&;' 30<.;*.5" 2!3' (0>>*1'-/6<&.!=*'&41'7&33!/4&.*'-2&(&-.*(" &41' 2!3';!=*;5'&41'/,.*4!67*.0/03'!6&>!4&F .!/4' 2*5' &(*' A(!..*4' !4' .2*' -/;;/:0!&;' ;&4>0&>*' /,' 2!3'.!6*' A2!-2'2&1'6&45'7/!4.3' /,' -;/3*' -/4.&-.' A!.2' .2&.' 37/D*4' <5' .2*' ;/A*(' -;&33*3' !3';!.*(&(5'&-.!=!.5' A2!*2' *0.*41*1'/=*('&'-/43!1*(&<;*';*:>.2' /,' .!6*' A&3'&.' !.3' 2*!>2.' !4' .2*' (*!>43' /,' *=*(' 3' &41' &(&-&;;&' !3' 1 'A(!..*4'&</0.' $TR' 2/;13' .2*' ,/(*6/3.' 7;&-*' &6/4>3.' 2!3' A/(D3' .' !3' /4*' /,' 2!3' *&(;!*3.' A(!.!4>3' &41' A&3' &11(*33*1' ./' .2*' 7(/=!4-!&;' >/=*(F 4/(3' /,' .2*' /6&4' *67!(*' !4' 1*,*4-*' /,' 2(!3.!&4!.5' 10(!4>' &' .!6*' /,' <!..*(' 7*(3*F -0.!/4

*33,!(&'#; " ' - +' /%' # ' * ' $' -(+' '" !% ? !' .' "/A%$$% ,' ! ' !: ' !: "!> ' # ' 9

3.,;1/' 8 &.' (' (" ' H' 2 (i ' 2' >*4*(&;' 1*3!>4&.!/4' ,/(' 1!,F ,*(*4.' D!413' /,' 32*13' ,/(' .2*' 7(/.*-.!/4' /,' 3/;1!*(3'*4>&>*1'!4'&'3!*>*' # ' /0.'@041*(' $

.253' A!,' /,' ->./03' # ;*.(&1(&-2614' ' (**D' 3!;=*(' -/!4' *:0!=&;*4.'./',/0(' ('# '"

.(J;,!>!&' 2*' .2*4!&4'.*(6'>!=*4'./' .2*' >(/07' /,' ,/0(' 7;&53' A2!-2' .2*' 7/*.3' 7(/10-*1'!4'(!=&;(5'A!.2'*&-2'/.2*(' &.' .2*' 1(&6&.!-' -/4.*3.3' 2*;1' &.' .2*' ,*&3.' /,' !/45303' ,.*(' .2*' !4.(/10-.!/4' /,' .2*' 3&.5(!-' 1(&6&' .2!3' /(' &' 1(&6&' /,' &' -/6F 7&(&.!=*;5'-2**(,0;' -2&(&-.*(' 830-2' &3' .2*' ' /,' 0(!7!1*39' ,/(6*1' .2*' ,/0(.2' 7!*-*' /,' .2(**' .(&>*1!*3' /(' /,' &' .(!;/>5'% 5' &' .*.(&;/>5'!3' 6/(*' 7&(.!-0;&(;5'6*&4.' 30-2' &' >(/07' /,' ,/0(' 1(&6&3' &3' 2&1' <*F ;/4>*1' ./' .2*' 3&6*' -5-;*' /,' 65.23' &41' 2&1' .203' ,/(6*1' &' -/44*-.*1' A2/;*' ' 30-2'&'D!41'A*(*'.2*'.*.(&;/>!*3'/,' ;3-25;03' .' !3' 1/0<.,0;' 2/A*=*(' A2*.2*(' 2*' ,/041' .2!3' .57*' /,' -/44*-.*1' .*.(&;/>5' &;(*&15' !4' 03*' /(' A&3' .2*' ,!(3.' ./' !4.(/10-*' !.' /72/-;*3'&</;!32*1' .2*' -/44*0!/4' <*.A**4' .2*' 3*=*(&;' 7!*-*3' &41' 0(!7!1*3',/;;/A*1' 2!3' *0&67;*' ' -/67;*.*' .*.(&;/>5' !3' 4/.' *0.&4.' &;.2/0>2' &' .(!;/>5' *0!3.3' !4' .2*' ' /,' B-25;03' -/43!3.!4>' /,

".2*.(&>*1!*3 1 " " $+ M &41 9 " *.2*3&.5(!- 7;&5 &77*41*1 ./ !. A&3 .2* ,

.(&(-2 8 (((/7(;5 .2* (0;*(/, /4* /, .2* ,/0(7&(.3 /, & 1!3.(!-. 1!=!1*1 !4./ ,/0(>/=*(46*4.3 ;3/ .2* .!.;* /, & 7*..5 7(!4-* ;!D* .2* (0;*(3 !4 .2/3* 7(/=!4-*3 /, 3!& A2!-2 A*(* &;;/A*1 k<5 /6* ./ (*.&!4 &-*(.&!4 !41*7*41*4-*

0-(8 (+ 8$9 3/4 /, -V" 6&41*(&41 .2* 5672 13*&" .2* 6/3. &4-!*4.3D!4>3 /, (/h , (/6 A2/6 .2* 7*/7;* A*(* -&;;*1 *0-(! --/(1!4>3 ./ &4/.2*(;*>*41 2* A!.2 -&6&41*(A&3 1(!=*4 <5 ,&6!4* ,(/6 (*.* &41 ,/041 (*,0>* A!.2 &(1&403 A2!;* &4/.2*(=*(3!/4 /, .2* 3./(5 1*3-(!<*3 &(1&403 &3 2&=!4>3 <**4 (*-*!=*1 <5 *0-*(

8@9 3/4 /, *;&6/4 /, &;&6;3 8.203 4&6*1 ,(/6 2!3 1*3-*4 ,(/6 *3 4* .2* *0-(!&4 D!4>3 1&0>2.*(9" 2&;,"<(/.2*(/, K&0 * A&3 .2* <*3. &(-2*(&6/4>3. .2* (**D3 <*,/(* (/5 4 2!3 (*.0(4 ,(/!& .2* A&(--03*1 <5 2!3 ,&.2*(/, 7&(F .!-!7&.!/4 !4 2!3 <(/.2*(3 60(1*(&41 <&4!32*1 ,(/6 .2* -/04.(5 2*3/0>2. &4*A 2/6* !4 57(03 <5 .2* &1=!-* /, 7/;;/ A2*(* *;03 /, !1/4 !4 (*.0(4 ,/(&33!3F .&4-* (*41*(*1 2!6 !4 A&(6&1* /=*(./ 2!6 .2* >/=*(46*4. &41 2* ,/041*1 .2* ./A4 /, &;&6!3 ,.*(2!3 ,&.2*(3 1*&.2 !. !3 3&!1 .2&. 2* (*.0(4*1 ./ 2!3 4&.!=* ./A4 /, &;&6!3 <0. A&3 1(!=*4 &A&5 <5 2!3 4*72*A &41 A*4./ 7&!4

2& 603 2* (**D .*(6 ,(&-/6F 6/1!/03 (//6 !4 &2/03* &41 *37*-!&;;5 .2* 407.!&;-2&6<*(& /)

2&!!&8 (+ 8$9 4* /, .2* % (&-*3 & "

8@9 2* 03* /, 1&4-!4> &41 7&3./(&; 7/*.(5 & 0)

2&;;/ /11*33 /, ,;/A*(3 A2/7(*3!1*1 "/=*(37(!4> 8B ** /) 9

2! 65(;3 2(&-!&4 <&(1 6*4.!/4*1 <5 /6*(W !!! VTVg 3/4 /, 2;;&66/4 &41 .2* 5672 (> 7* * </&3.*1 .2&. 2* -/0;1 (!=&;.2* 03*3 &41 A&3 .2*(*,/(* G1*7(!=*1 <5 .2*6 /, 3!>2. &41 =/!-* &41 .2* 7/A*(/, 7;&514> .2* ;0.* --/(1!4> ./ ;&.*(;*>*413 2* *07!&.*1 2!3 &((/>&4-* <5 <*!4> 704!32*1 !4 &1*3

2V4&.?3 2* (**D 7*(3/4!,!-&.!/4 /, 1*&.2 &

2&(>*;! 2* 7(!4-!7&;,*&3. /, 7/;;/ !4 .2*43 2*;1 /4 .2* 3*=*4.2 1&5 /, +(2 1 = "8 &5" 04*9 .2* <!(.21&5 /, .2* >/1 (!>!4&;;5 !.' A&3 -/44*-.*1 A!.2 .2* (!7*4F !4> /, .2* ,!*;1 7(/10-* 7(/-*33!/4 A&3 ,/(6*1 &41 .2* ,!(3 ,(0!.3 /, .2* 5*&(A*(* /,,*(*1 ./ 7/;;/ ./>*.2*(A!.2 (. 6!3 &41 .2* /(3* .&A&3 &. .2* 3&6* .!6* &4 *07!&./(5 ,*&3. &. A2!-2 & 7*-0;!&(7(/7!F .!&./(5 3&-(!,!-* A&3 /,,*(*1 A2!-2 A&3 ./ 70(!,5 .2* .&.* ,(/6 &;; >0!;. &41 &=*(. .2* A(&./ , .2* >/1 ;*3. 2* 32/0;1 *0*(F -!3* 2!3 &=*4>!4> &41 1*3.(/5!4> 7/A*(!4 <0(4!4> 07 .2* 2&(=*3. A!.2 7&(-2!4> 2*&. &41 !4 =!3!.!4> .2* 7*/7;* A!.2 7*3.!F ;*4-* A/ 7*(3/43 -/41*64*1 ./ 1*&.2 & 6&4 &41 & A/6&4 &3 (*7(*3*4.&.!=*3 /, .2* 6&;* &41 ,*6&;* 7/70;&.!/4 A*(* ;*1 &</0. A!.2 & >&(;&41 /, ,!>3 (/041 .2*!(4*-D3 ./ .2* 3/041 /, ,;0.*3 &41 3!4>!4> &41 3-/0(>*1 A!.2 3*&A**1 &41 A!.2 .2* <(&4-2*3 /, & ,!> .(** 2*5 A*(* .2*4 3&-(!,!-*1 &. & -*(.&!4 37/. /4 .2* 3*&F 32/(* .2*!(</1!*3 <0(4*1 &41 .2* &32*3 -&3.!4./.2* 3*& 4 ;&.*(.!6*3 .2*5 3** 6 ./ 2&=* <**4 -/4.*4.*1 A!.2 .2(/A!4> .2* *07!&./(5 =!-.!63 ,(/6 & 2*!>2. !4./ .2* 3*& -&.-2!4> .2*6 &3 .2*5 ,*;2 &41 <&4!32F !4> .2*6 ,(/6 .2* -/04.(5 *3!1*3 .2*3* 3&-(!,!-*3 G,*3.&; 7(/-*33!/43 &41 -2/(&; -/4.*3.3 <*.A**4 6*4 &41 </53 .//D 7;&-* .2* 3&6* .!6* .2* >(*&.,*&3. /, 7/;;/ A&3 7(/<&<;5 2*;1 &. *;?3 ./ A2!-2 .2* .2*4!&43 3*4. & 3&-(*1 *6<&335 !4 .2* &4-!*4. 32!7 !4 A2!-2 2*3*03 !3 3&!1 ./ 2&=* 3&!;*1 ./ (*.* &41 A2!-2 A&3 &;A&53 D*7. !4 (*7&!(

B&06&3 /4 /, /4.03 &41 6& 203F <&41 /, ;*-.(& 4* /, .2* ->&4,1*3 &41 ,&.2*(/, .2* &(7!*3 &41 (!3

2 &4/ 2* 7(*.*41*1 A!,* /, 5.2&F >/(&3 .2* 72!;/3/72*(*=*4 *0.&4. ;*..*(3 /4 K*&;/035 /4 .<* *10-&.!/4 /, -2!;1(*4 .2* 6&4&>*6*4. /, & 2/03*2/;1 *.- &(* &..(!<0.*1 ./ 2*(

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2* (**D .2*&.(* A&3 /(!>!4&;;5 !4F .*41*1 ,(/ .2* 7*(,/(6&4-* /, 1!.25(&6<!- -2/(03*3 &. .2* ,*&3. /, !/45303 . * ' & ' (/6 .2* ,!(3. !. -/43!3.*1 /, .A/ 7(!4-!7&;7&(.3 W 8&9 .2* -!(-0;&(1&4-!4>"7;&-* " 8$ A!.2 .2* &;.&(. # 1 /, .2* >/1 !4 .2* -*4.(* &41 .!1 .2* 7;&-* ,/(.2* 37*-.&./(3 /(.2* 7(/7*(2* A&3 !4 .2* ,/(6 /, /&3*>6*4. /, &-!(-;* >(*&.*(.2&4 &3*6!"-!(-;* A!.2 .2* 3*&.3 (!3!4>* &</=* /4* &4/.2*(!4 -/4-*4.(!-. *(,!> $9 2* 3*&.3 A*(* &;6/3. &;A&53 -0. !4 .2* 3;/7* /, &2!;; f 2*(* &(* *OF -*7.!/43 ./ .2!3 (0;* &. >&;171;!3 &41 &4.!4*!& A2*(* .2*(* !3 &4 &(.!,!-!&; 30<3.(0-.0(* g 2*4 .2* 1!.2K((&6<!- -2/(03*3 2&1 1*=*;/7*1 !4./ .2* 1(&6& &

3.(0-.0(*' -&;;*1' .2*' " ' 8 &. ' @" ' A&3'% &11*1' A!.2' &' 3.&>*' ,/(' 1(&6&.!-' (*7(*3*4F .&.!/43' .' A&3' *(*-.*1' /4' .2*' 3!1*' /,' .2*' ('&A&5',(/6' .2*' 37*-.&./(3' &41' &.' 30-2' &' 2*!>2.' &41' 1!3.&4-*' &3' ./' &;;/A' /,

2&=!4>' H' <0!;.' I' .2*' .2*&.(* g' 2*' (*6&!43' /,' .2!3' .2*&.(*' 2&=*' <**4' *07/3*1' ./' =!*A' 3!4-*' .2*' *0-&=&.!/43' /,' $R?@' f 0(.2*(' *0-&=&.!/43' !4' .2*' 1!(*-.!/4' /,' .2*' 3.&>*' <0!;1!4>3' A*(*' 6&1*' !4' $RUU' &41' $RR?g'

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.2*' 3.&>*' <*!4>' !4' ,0;;' =!*A' ,(/6' *=*(5' 7&(.'/,'.2*' .2*&.(*

2*',!(3.'3./4*' .2*&.(*' A&3' .2&.' <0!;.' &.' .2*43' .2*' 2/6*'/,' .2*' (**D' 1(&6&' &41' .2*' .2*&.(*3' !4' *=*(5' 7&(.' /,' .2*' *;;*4!-' A/(;1'A*(*' -/43.(0-.*1'/4'.2*'3&6*'>*4*(&;' 7(!4-!7;*3' .'!3'3&!1'.2&.'&.'&' 7*(,/(6&4-*' &</0.'CT?' ' A2*4' 3-25;03' (&.!4&3' &41' 2/*(!;03'A*(*' -/67*.!./(3'.2*'A//1*4' 3-&,,/;1!4>' /4' A2!-2' .2*' 37*-.&./(3'A*(*' 3.&41!4>' <(/D*' 1/A4'' &41' .2&.' !.' A&3' &--/(1!4>;5'(*3/;=*1' ./' -/43.(0-.'&'.2*&.(*' /,'3./4*'!43.*&1'f 0!1&3' ' (&.!4&3g' 2*' <0!;1!4>' A&3' 4*&(' .2*' *&3.' *41' /,' .2*' 3/0.2*(4'3;/7*'/,' .2*' -(/7 ;!3' &41'!4'!.3' -/43.(0-.!/4' 7&(.!&;' 03*' A&3' 6&1*' /,' .2*' (/-D' &>&!43.'A2!-2' !.' (*3.*1' .' A&3'4/.' 2/A*=*(' -/67;*.*1' 04.!;' <*.A**4' CN' &41' N' '"A2*4' .2*43' A&3' 041*(' .2*' ,!4&4F -!&;' &16!4!3.(&.!/4' /,' 5-0(>03' W$ ' !4F 3-(!7.!/4'!4'$ ' ' $U?'/(' !-D3' " ' ' 6 ' ' '" " ' /'$@R' 3*01/" ;0.&(-2' ; ' ' ('+ "' ' 7' RC$' ' &03&4!&3' !' @T' ' $?' ;;' .2*3*' &0.2/(!.!*3' 37*&D' /,' 5-0(>03' &3' 2&=!4>' H -/67;*.*1I' .2*' .2*&.(*' .' !3' 57 (1*3' &;/4*' #A 1 ' $ T' &077*9' A2/'!4' &'37**-2' /4' <*2&;' /,' .2*' -2!;1(*4' /,' 5-0(>03' (2*./(!-&;;5'1*3-(!<*3' 2!6' &3 ' f 4' -/44*0!/4'A!.2' .2*3*' ;&3.'*0-&=&.!/43' &' .2*/(5'A&3'3.&(.*1'<5' (' (7,*;1'/,'.2*' *(F 6&4' -2//;' /,' (-2&*/;/>5'&.' .2*43' --/(1F !4>'./' 2!3' =!*A' 8$9' .2*' 3&-(*1' 7(*-!4-.' -&;;*1' .2*' ; " "' -/4.&!4*1' !4' .2*' V.2' -*4.0(5' (' 4/' 7*(6&4*4.' <0!;1!4>',/(' 1(&6&.!-' 70(7/3*3' <0.'/4;5'.A/' .*67;*3'.2*'/;1*(' 1&.!4>',(/6'.2*' .!6*'/,' !3!3.(&.03' &41' -;/3*' ./' !.' &' -!(-0;&(' /(-2*3.(&'3*=*4.5"*!>2.',**.'!4'1!&6*. d' 41V"' -;1 3' 5 ' : ' `' R' 37*&D3'n/,'-*(.&!4'-/4F 37!(&./(3'1*3-*41!4>'H',(/6'.2*' ' !4./' .2*' ('4/.' .2*' "'' &41' !4' (!3./72&4*3' .2*' A/(1' ("' !3' &77;!*1' ./' .2*' ' &;/4*' 8@9' 2*' ,!(3.'7*(6&4*4.' <0!;1!4>' A&3' -/67;*.*1'<5' 5-0(>03'!4' N' ('&41' -/43!3.*1' /,' &'3./4*'A&;;' 3!0.5",!=*' ,**.'3*=*4'!4-2*3';/4>' A!.2'.A/'A!4>3'(!3!4>' ;!D*' ./A*(3'/4'*!.2*('3!1*' *2!41' .2*' A&;;' A&3' &4' /<;/4>' (//6' ,/(' .2*' &-./(3'&41'!4',(/4./'/,' .2*' A&;;' ./' .2*'4/(.2'.2*(*' A&3'&'4*A' (' ^/A3'/,' 3*&.3' A*(*' -/4F 3.(0-.*1'&.' .2*'3&6*'.!6*"<0.'&.' 7(*3*4.' .2*(*' A&3'4/'(&!3*1'3.&>*' 8 9' .'3/6*';&.*('1&.*'.2*(*' A&3'<0!;.'&' 7*(6&4*4.' " '/,'3./4*'.*4' /(' .A*;=*',**.' 2!>2' 8C9' 41*(' ;&01!03' 8.2*' H' *(/'1'/,'.2*'!43-(!7.!/4'/4'.2*'(1 " '.2*' /(-2*3.(&'(*-*!=*1'!.3'7&=*6*4.'/,' 6&(<;*'&41' &</0.'.2!3'.!6*'.2*'3.&>*'A&3'(&!3*1' 8V9' 4'.2*' (1'-*4.0(5' '/4*' 2&*1(03'A2/3*' 4&6*' &7F 7*&(3'/4'.2*'!43-(!7.!/4'/4'.2*' (1 " ' *(*-.*1'&'4*A'3.&>*' !4',(/4./,'.2*'/;1*('/4*' /'.2!3'7*(!/1'!4'/.2*('A/(13'./' /6!32'.!6*3' <*;/4>3' &;3/'.2*' -/4.!40/03' 3./4*' <&;03.(&1*' 3*7&(&.!4>'.2*' ',(/6'.2*' (4'.2*'/.2*('2&41'!.'2&3'<**4'/<3*(=*1'8$9'.2&.' -' RN' !3'&'=*(5';&.*'1&.*',/('.2*' .2*4!&43'./' 2&=*'*(*-.*1'.2*!('*&(;!*3.'3./4*'.2*&.(*' 8@9' 2*

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!.2 .2 37(*&1 /, 1(&6&.!- (*7(*3*4.&F .!/43 3./4 .2*&.(*3 A*(* <0!; !4 *=*(5 7&(./, .2 *;;*4!- A/(;1 &41 32/(.;5 &,.*(.2 .!6 /, ;*0&41*(.2 (*&. .2*5 A*(* 7(&-.!-&;;5 04!=*(3&; . 2&3 <**4 *3.!6&.*1 .2&. .2 .2*&.(* &. .2*43 2&1 (//6 ,/(@U VNN 7*(3/43 WN (" 9 " O!!! 7 @N@g ;&./ !3 /4;5 03!4> (/041 406<*(3 A2*4 2 37*&D3 /, &7;&5 /, >&.2/4 2&=!4> <**4 A!.4*33*1 <5 RN NNN 37*-.&./(3 W : $UV W 6/4> /.2*(;&(> .2*&.(*3 6&5 <* 6*4./!4*1 !4 (**-* .2/3* /, *>&;/7/;!3 7&(.& &41 7!1&0(03 !4 !-!;5 .2&./, 5(&-03* !4 3!& !4/(.2/3* /, 72*303 &41 !;*.03 2*(* A*(* &;3/ ;&(> .2*&.(*3 !4 (*.* f 6/4> /.2*(.2*&.(*3 /, (**D /(!>!4 (*6&!43 /, A2!-2 &(* 3.!;; !4 *0!3.*4-* &(* .2* ,/;;/A!4>W !4 6 &. .2 *!(3*03 &. 2/(!-03 (703 !-5/4 (>/3 &4W .!4*!& 2!4!&33& &41 (&65303 !4 7!(03 &41 !4 *;/3 &41 *;?3 4 :&. -(& * 571J(!3 &0(6*4 4 &41 ?>*3.& 8,!> 9 4 " &. 37*4103 *(>* &41 !1* !4 &6725;!& 5(& &.&(B &41 &;W 6!3303 !4 5-!& ;&33/3 !4 &(!& 33 3 &41 *(>&6 4 !4 53!& &41 !*(&7 ;!3 &41 !Q&4! !4 2(5>!& g . !3 *3.!6&.*1 .2&. !4 .2* .2*&.(* &. .2*43 .2*37&-* &33!>4*1 ./ *&-2 37*-.&./(A&3 &</0. .2!(.**4 !4-2*3 !4 <(*&1.2 .2* 1*7.2 /, .2*3*&. A&3 30,,!-!*4. /&;;/A(//6 <*2!41 ,/(.2* ,** /, .2* 37*-.&./(3!..!4> !6 6*1!&.*;5 &</=* /, ,&-!;!.&.* &--*33 ./ .2* =&(!/03 7&(.3 /, .2* .2*

(-.!/4 /, &A//1*4 3.(0-.0(*!4-;01!4>&=&3 40! <*(/, 3*&.3 .A!-* &5*&(/(.2* D**7!4> /, 30-2 3.(0-.0(* !4 (*7&!(A/0;1 2&=* 2**4 &.(/0<;*3/6* &.3D 8 9 2* *=!1*4-* ,/6 ;!.*(&F .0(* !4 ,&=/0(/, A//1*4 3*&.3 !3 !4-/4-;03!=* (!3./72&4*3 &+(U4G & 1 (&.;403 #A 1 ?$9 37*&D /, / (H <*4-2*3I <0. .2!3 6&5 <* /4;5 &30(=!=&; /, .2* /;1*(.*(6 A2*4 !. A&3 4/ ;/4>*(3.(!-.;5 &--(7(&.* 8C9 2* *=!1*4-* &;(*&15 :0/.*1 &3./ 5-0(>03 !3 /4 .2* A2/;* !4 ,&=/0(/, 2!3 2&=!4> 3 3.(0-.0(* .2&. A&3 &;(*&15 7&(.!&;;5 ,!4!32*1 8V9 2* (*.&!4!4> A&;; 3077/(.6> .2* (/A3/, 3./4* 3*&.3 /4 *!.2*(3!1* !3 <0!;.A!.2 *4/(6/03 <;/-D3 /, -/4>;/6*F (&.* 2!11*4 <5n &.2!4 A&;; /, .2* ,!4*3. ;!6*3./4* . . !3 .2!3 -/4>;/6*(&.* A2!-2 !3 041*(3./1 ./ <* /4* /, .2* >(/0413 /4 A2!-2 (/(7,*;1 &33!>3 & &.* 1& * ./ .2* 3.(0-.0(* 0. 8&3 /<3*(=*1 <5 (/,*33/(!11;*./4 !4 -/(F (/</(&.!/4 /, &7&7*((*&1 <5 (/, *<<* ./ .2* &</=* *,,*-.g .2* 7/!4.!4> /, .2* <;/-D3 !3 &;; H 1(&,.*1 ! 6&3/4(5 &41 &,! .2* K/!4.3 &(* 6&(D*1 A!.2 &32&;;/A>(//=* &41 .2* A2/;*,&-* 1(*33*1 A!.2 &=*(5 <(/&1-2!3*;7&(.*1 !4 ./,/0(.**4 .** .2 K03. &3 !4 .2* A&;;3 /, ;6<2 (2!3 (*&3/4 (/, !11;*./4 2/;13 .2&. .2* <*;/4>3 ./ .2* 6!11;* /, .2* V.2 -*4.0(5 A2!;* .2* 7*(F 6&4*4. 3.&>* <0!;1!4>3 6&5 <* &33!>4*1 ./ .2* .!6 * /, 5-0(>03 (' ' ' *Y, g

%7&(&;;*; .!*(3 /, 3*&.3 A*(* 3*7&(&.*1 <5 /4* /(6/(* <(/&1 7&33&>*3 (044!4>, (/6 *41 ./ *41 &41 2/(!Q/4.&;;5 1!=!1!4>, .!*(3 !4./ 3*=*(&; Q/4*3 .2*3* 7&33&>*3 A*(* &;;*1 " 8 &. " " 2* 3*&.3 A*(* &;3/ 1!=!1*1 =*(.!-&;;5 <5 3.&!(3 (&1!&.!4>, (/6 <*;/A &41 !4.*(3*-.!4> .2* Q ' &. (!>2. &4>;*3 2* A*1>*F ;!D* <;/-D3 .203 ,/(6*1 A*(* -&;;*1 2 8 &. " 2* 406<*(/, .2* 3.&!(3 =&(!*3 &--/(1!4> ./ .2* 3!Q* /, .2* .2*&.(* 4 .2* .2*&.(* &. .2*43 .2*(* &(* ,/0(.**4 >!=!4> &--*33 ./ .2!(.**4 <;/-D3 /, 3*&.3 f 2* &01!*4-* A*(* 7(/F <&<;5 &((&4>*1 &--/(1!4> ./ .2*!((*37*-F .!=* .(!<*3 &41 .2* 406<*(/, .2* .(!<*3 A&3 (&!3*1 !4 ;&.*(.!6*3, (/6 .*4 ./ .A*;=* /(.2!(.**4 4 2* (**D .2*&.(* .2* 4/(6&; 406<*(/, .2* 3.&!(3 A&3 *=*4 !4 .2* /6&4 !. A&3 030&;;5 04*=*4 2*5 *!.2*(&3-*41 3.(&!>2. .2(/0>2/0. .2* A2/;* <0!;1!4> /(&(* !1!,,*(*4.;5 &((&4>*1 !4 .2* 3*=*(&; Q/4*3 /, 3*&.3 f 203 !4 .2* .2*&.(* &. 7!1&0(03 1*3!>4*1 <5 ?$5 -;;.03 .2* 5/04>*(.2*(* &(* A*;=* 2 !4 .2* ;/A*(Q/4* &41 .A*4.5".A/ !4 .2* 077*(/4;5 *;*=*4 ,;!>2.3 /, 3.&!(3 &3-*41!4> 3.(&!>2. ,/6 .2* ;/A*3. ./ .2* 2!>2*3. 7&(./, .2* [4 .2* .2*4!&4 .2*&.(* .2* ,(/4. (/A /, 3*&.3 A2!-2 A&3 .2* 4*&(*3. ./ .2* (-/43!3.*1 /, 3!0.5"3*=*4 6&(<;* 3.&;;3 ,/(.5",!=* /, .2*3* A*(* (*F 3*(=*1 ,/(7(!*3.3 &41 ./.2*(6!4!3.*(3 /, (*;!>!/4 &41 .2* (*3. ,/(.2* ,!-!&;3 /, .2* .&.* 2* -*4.(&; 3*&. !4 .2!3 (/A A&3 (*3*(=*1 ,/(.2* 7(!*3. /, !/45303 2* (!>2. /, /--075!4> &(*3*(=*1 3*&. !4 /4* /, .2* ,(/4. (/= 3 A&3 -&;;*C f (!3./72&4*3 9 VUV UN@ $CNV " &41 !. A&3 !4 .2!3 7&(./, .2*.2*&.(* .2&. 3*&.3 A*(* 7(/=!1*1 ,/(70<;!- <*4*,&-./(3 ,/(.2* 1 ,/(.2* /(72&43 /, .2/3* A2/ 2&1 ,&;;*4 !4 A&(f,,;3-2!4*3 $ $UCg &41 ,/(&;4<&33&1/(3 ,/(6 ,/(*!>4 3.&.*3 f *6/3.2*4*3 5 $ @Rg 2* K01>*3 /, .2* 1(&6&.!- -/67*.!.!/43 3&. />*.2*(!4 &</15 &41 A/0;1 4&.0(&;;5 2&=* 3/6* /, .2* <*3.7;&-*3 &33!>4*1 ./ .2*6 * *2!41 .2* ,(/4. (/A *(* 7;&-*1 &406<*(/, !4,*(!/(7(!*3.3 &41 7(!*3.*33*3 . !3 4/ D4/A4 2/A .2* (*3. /, .2* 37*-.&./(3 A*(* &((&4>*1 <0.!. !3 7(/<&<;* .2&. D* 6*6<*(3 /, *&-2 .(!<*3 3&. !4 .2* 3&6* 7&(./, .2* .2&.(* 2* .!-D*.3 /, &16!33!/4 1!3-/=*(*1 !4 ..!-&;&(* /, .A/D!413 8&9 /(1!4&(5 ;*&1*4 ./D*43 &</0. .2* 3!Q* /, *!.2*(&, ;/(!4 /(86/(* ,(*:0*4.;59 &3!0 7*445"<!. A!.2 60 (&!!& 4(&6&2 /4

.2*' /<=*(3*'&41'.2*' 4&6*' /(' 406<*(' /,' &'
.(!<*' /4'.2*' (*=*(3*' 8?9' -/04.*(3' /,'</4*' /('
!=/(5'&</0.'.2*' 3!Q*' /,'2&;,"&"-(/A4'A!.2'&'
2*&1'/4'/4*' 3!1*'&41'/4'.2*' /.2*(' &' (**D'
/(' /6&4'406*(&; [4*=*(' 2!>2*(' .2&4' O='
8,!>'@9' 2*';&..*('A*(*',/(' .2*03*'/,'7*(3/43'
4K/5!4>'.2'(!>2./,' '&41'<*;/4>'./'
.2*' /6&4'7*(!/1'8 *441/(,3' 1'7 ?'
,,' &06*!3.*(3' 5 " ',!>3'$R BV9'
2*' 7(!-*' /,' &' .!-D*.'A&3' .A/' /</;3'8&</0.'
1 9'' &41'!4'.2*' -&3*' /,' /(*(' -!.!Q*43'.2!3'
7&56*4.'A&3'6&1*' /0.'/,'.2*' ("

8@9' ' '" ^
!.2'2*&1'/,' (1K63
8 /4Q*4<&-2' /;;*-.!/4' 6K(4&9

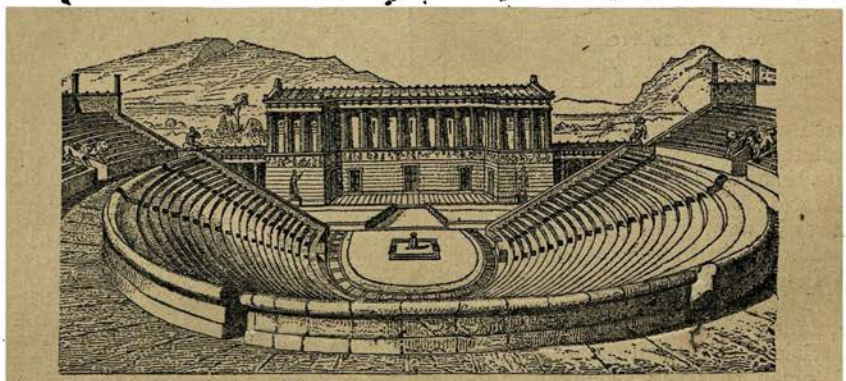
/6*4' A*(*' >*4*(&;;5' 7(*3*4.' &.' .2*'
7*(,/(6&4-*' /,'.(&>*1!*3' <0.',(/6' .2&.'/,'
-/6*1!*3'.2/3*' /,'.2*'2!>2*(' -;&33*3'030&;;5'
3.&5*1' &A&5' 4' .2*' V.2' -*4.0(5' .2*'
A/6*4'3&.'!4'&'3*7&(&.*' 7&(.'/,'.2*'.2*&.(*'
8 (!3./72&4*3' /&Mf T?C9'' &.'.2*'<&-D'&--/(1F
!4>'./' /;;00' 8!0' CC9'' &41' A!.2' .2*' (*3!F
1*4.'&;!*43'<*2!41'.2*6' /53'A*(*'&16!..*1'
8 ;&./' ; @ ' ?VR' -9'' 3;&=*3' 7(/<&<;5'4/.'
2*'7(/=!3!/4'&>&!43.'304'&41'(&!4'-03./6&(5'
!4'.2*' /6&4'.2*&.(*' A&3' 04D4/A4'./' .2*'
&4-!*4.' (**D3' f 2/3*' A2/'-/0;1'&,,/(1'
!.' <(/0>2.' -032!/43' &41' -&(/*.3' ./' 3!.' /4'
8 B3-2!4*3' $ 'U?'' , ' ; 1' $$$9' 5'
-/6 6&41' /,' .2*' /(&-;*' &.' *;72!' &;;' .2*'
37*-.&./(3' A/(*' A(*&.23' /,' <&5' ;*&=*3' !4'
2/4/0('/,' !/45303'8 *6/3.2*4*3' 'V@9g
2*' ('A&3'-/43!1*(&<;5'<*;/A'.2*'
;*=*;'/,' .2*' 3.&>*' f 4' .2*' .2*&.(*' &.' 7!'
1&0(03'.2*' 3.3B' !3' &;6/3.' *0&-.;5'.A*;=*'
,**.'2!>2' !4'.2&./,' *>&;/7/;!3'*0-&=&.*1'
!4'$R '.2*'2*!>2.'!3'&</0.'3!0';**.g' 2*'
-2/(03'*4.*(*1'.2*' /(-2*3.(&'<5'6*&43' /,'
7&33&>*3'& ' /4' *!.2*(' 3!1*' /,' .2*'
3.&>*' 2*3*' &;3/' >&=*' &--*33' ./' .2*'
&01!*4-*' A2/' -&6*' !4' <5' .2*' ('
&41'.2*4-*' 6/04.*1'.2*' ,;!>2.3' /,' 3.*73'
;*&1!4>'./' .2*' 3*&.3' &33!>4*1'.2*6' 2*'
('A&3' -/44*-.*1'A!.2'.2*' 3.&>*'<5'
6*&43' /,' 3.*73' <5' A2!-2' .2*' -2/(03'
&3-*41*1' /4' .2*' (&(*' /--&3!/43' A2*4' .2*'
&-.!/4' /,' .2*' 7;&5'!4=/;=*1'.2*!('7(*3*4-*'
/4' .2*' 3.&>*' % 1' /72/-;*3' M ' $ '
RV?"U'' (!3./72&4*3' 9 ' CTN"C'' -7 '
'N'

(' @C"U' ' V "CNN' 0.' &3' &'
>*4*(&;' (0;*' .2*' -2/(03' (*6&!4*1' !4' .2*'
('&.'&';/A*('*=*;'.2&4'.2*' 3.&>*g
.(!-.;5' 37*&D!4>'!.' A&3' /4;5' .2*'
1*-/(&.*1' A&;;' &.' .2*' <&-D' /,' .2*' 3.&>*'
.2&.' A&3' -&;;*1' .2*' " ' 8;!.' H</!.2!9'
2*' 3&6*' 4&6*' A&3' 2/A*=*(' >!=*4' ./'
.2*' 3.&>*"<0!;1!4>3' &41' 8,&(' 6/(*' ,(*F
:0*4.;59' ./' .2*' 3.&>*' /4' A2!-2' .2*' &-./(3'
7*(,/(6*1' 2*' 6/(*' 1!3.!4-.!=*' 1*3!>4&F
.!/4' ,/(' .2*' 3.&>*' !3' " ' 8 ('
" " ' H .2*' 37&-*' !4' ,(/4./,' .2*'
. ' /(' </!.2!9' /(' ' 1 "' 8H .2*' 37*&DF
!4>"7;&-*' I 9.' .' !3' &;3/' -&;;*1' #8 M

% f 2*' /(1!4&(5'=!*A'.2&.'.2*' &-./(3'/--07!*1'
&'4&((/A'(&!3*1'3.&>*' <*2!41'.2*' ('A&3'
,!(3.'&..&-D*1'<5' 7D*4' '+(' ' '
'$ '1 " '8 /44'$RRC9' A2/' !3' 077/(.*1'<5'
(' /(7,*;1' .'!3'.(0*'.2&.'.2*'3.&>*"<0!;1!4>3'
*0-&=&.*1'&.' 7!1&0(03'&(*' .A*;=*',**.'2!>2*('
.2&4'.2*' ('<0.'.2*3*'<0!;1!4>3'&(*' (*F
>&(1*1'<5' (' *(K(,*;1'&3'.2*'<&-D>(/041',.2*'
&-./(3'3.&>*'7&(.;5'<*-&03*'.2*(*'&(*'4/'3.*73'
;*&1!4>'1/A4'./'.2*'/(-2*3.(&' 4'.2*'/.2*('2&41'
8;9' !.(0=!03'='U'.*;;3'03'.2&.'.2*' (**D'3.&>*'
A&3',(/6'.*4'./' .A*;=*',**.'2!>2'<0.'4&((/A*('
.2&4'.2*' /6&4' 8@9' 2*'.2*&.(*'/,' 7!1&0(03'
6&5'7/33!<;5'2&=*' <**4' 7(/=!1*1' A!.2' A//1*4'
3.*73" (' (7,*;1' 2!63*;,' # "' ,(
M " ('$RTN' 7'$C C9' 3**3' 4/' /<K*-.!/4'./'
&3-(!<!4>'!.3' " './'.2*' (1'/('@41'-*4.0(5'
4 !' 2*' 2*!>2./,' !.3'3.&>*'.A*;=*',**.'-/((*F
37/413'./'.2&.'>!=*4'<5' !.(0=!03'&3'1!&(&-.*('
!3.!-'/,'.2*' (**D'.2*&.(*' 8 9' *=*(&;'7&33&>*3'
/,' (!3./72&4*3'!6 7;5'.2&.'.2*'&-./('A*(*'/4'&'
2!>2*('=*;'.2&4'.2*'-2/(03'# '$CT'-'3-2/;'
= '$ C$ VC" $UV"R'@?R9' 8C9' 2*'03*'/,
3.*73'./'-/44*-.'.2*' ('A!.2'.2*'3.&>*'!3'
&..*3.*1'<5'&'A(!.*('!4'.2*' *&(;!*(' 7&(.'"/,'.2*'
(1'-*4.0(5'4-' .2*43*03'.2*'&0.2/('/,'&'A/(D'
/4'*4>!4*3'/,' &(' ('7'@T'8*1' *3-2*(9'A2/'
-/67&(*3'-*(.&!4';&11*(3'03*1'!4'3!*>*3'./'.2/3*'
H'7;&-*1'!4'.2*&.(*3' &>&!43.'.2*KB(/3-*6&,/('.2*'
G&-./(3d'8-7' /;;00'!='$@U9' 8V9' 0-2'3.*73'6&5'
<*'3**4'/4'=&3*3'/,' /0.2*(4'.&;5'<*>!44!4>'A!.2'
.2*' (1'-*4.0(5'(*7(*3*4.!4>'-/6!-'3-*4*3'8*1'
&06*!3.*('!3 TN@'&41'$R@R_ (!.!32' 03' N"
-2(*!<*('3' ' ='$$ $ " *51*6&44'
!4'. (' '5 (' (''" '$RR?'7'@?N9
8?9' 2*'03*'/,' ' ' " 'H'07/4'.2*' ("_'!4'
(!3./.;*3', '!67;!*3'3/6*.2!4>'(&!3*1'&<'/=*'
.2*';*=*;'/,'.2*'>(/041'#$ - ' @'='TU9
8U9' 4'.2*'306 6*(' /,' $B ' &4'!43-(!7.!/4' A&3'
,/041'!4'.2*'.2*&.(*'&.' *;/3!1*4.!,5!4>'.2*' R
" 'A!.2'.2*' 1 " ' 2*'.2*&.(*3'&.' &>F
4*3!&'&41' (&;;*3'2&=*'&;3/'<**4'*0-&=&.*1' .'
(&;;*3'.2*(*'!3'&'1/0<;*',!!>2./,'3.*73';*&1!4>'07'
,(/6'.2*' ('./'.2*',(/4./,'.2*' " '
.*4'/('.A*;=*',**.'2!>2' 4'37!.*'/,'.2*'3.*73'.2*'
" '!3'*07;&!4*1'<5' (' (7,*;1'&3'6*(*;5'
&'<&-D>(/041',/('.2*'&-./(3'!4'.2*' ('.
&>4*3!&' 2*'&--*7.3'!.' &3'&'.(0*'3.&>*' .2*',*4',**.'
!4'2*!>2.'<0.'2*' &3-(!<*3'!.'./' /6&4'.!6*3'
("1 "'O=K!!'C$N"' O!0'R?"'. ' " '
' $BC' 7' @RN9' 2*' *=!1*4-*',(/6'.2*'
.2*&.(*'&.' *>&;/7/;!3'6&5'<*'(*>&(1*1'&3'!4-/4F
-;03!=*'&$ '7 ' '@RC' &41'9- " '
1 $ ' '. ' ',('
O!='?R $TR @U g' B' B

[Plato, *Symp.* 194 B] or *bēma* [Plutarch, *Phocion* 34, and inscription on the *hyposcēnium* of the theatre at Athens]. On either side of the *proscenium* were wings, called *parascēnia*, which, together with the space behind the real *skēnē*, served as dressing-rooms for the actors, and store-rooms for the costumes and machinery. The name of *hyposcēnium* was given to the hollow space beneath the floor of the stage, and also to the lower wall adorned with pillars and statues facing the *orchestra*. A flight of steps leading out upon the stage from underneath was occasionally used for bringing ghosts and spectres upon the stage. They were called "Charon's steps" [Pollux, iv 132].

The scenery was very simple. Like many other things connected with the stage, it is said to have been first introduced by

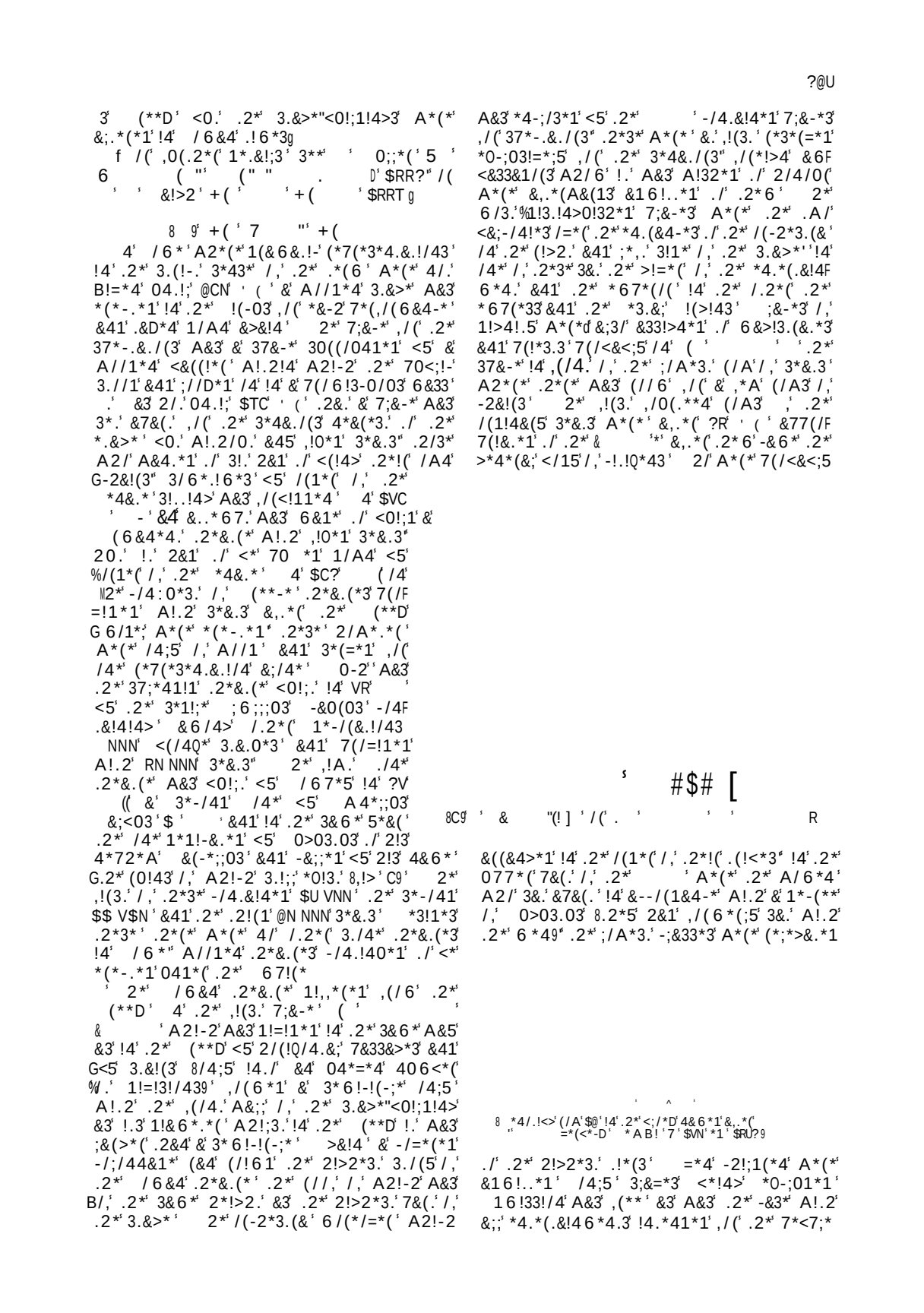


(3) THE THEATRE AT SEGESTA.
(As restored by Strack.)

Æschylus [Vitruvius, vii *præf.* 11]; but we have better authority for ascribing its introduction to Sophocles [Aristotle, *Poet.* iv 16]. The first painter of stage scenery (*skēnŏgrăphĭa*) is said to have been Agătharchus [Vitruvius *l.c.*]. The principal decoration consisted of a light and movable screen placed in front of the wall at the back of the stage. On this screen was painted the scene of the play. In tragedy, it was usually the front of a king's palace, with three doors. The interior of a house was never represented by means of painted scenery, but only by means of the mechanical device call the *ekkўklēma*. Towards the foreground of the stage, on each side, there was a revolving stand of three side-scenes, called a *pĕrĭaktŏs*,—a contrivance which allowed of the scenery at either or both ends of the stage being changed without changing the background. The *periaktos* to the right of the audience represented views in the immediate neighbourhood of the city where the scene of the action is laid. The *periaktos* to the left represented a more distant country. In correspondence with this, the entrance to the right of the audience was reserved for actors coming from the immediate neighbourhood; while that to the left was for those who came from a distance [Pollux, iv 126; Vitruvius, v 6; Servius on Vergil, *Georg.* iii 24]. In connexion with the action of the play, accessories, such as altars, statues, and tombs, were introduced when necessary. There is no direct evidence for a drop curtain in the Greek theatre.

Machinery of various kinds was used to imitate thunder and lightning. For the former, casks filled with pebbles were sent rolling down bronze surfaces [Pollux, iv 130]. There were also contrivances for making persons appear or disappear in the air [*ib.* 132]. But of these we know hardly anything except the names by which they were designated. In order to make the actor's voice more audible at a distance, vessels of bronze of different tones were sometimes suspended in niches in various parts of the *auditorium* [Vitruv. i 1, 9; v 5. Niches of this kind have been observed in the remains of the theatre at Aizāni in Phrygia, at Gĕrăsă in the *Dĕcăpŏlis*, and in Crete.] Theatres were frequently used for public purposes unconnected with the drama. At Athens the custom of using the theatre for assemblies of the people prevailed from the middle of the 3rd century B.C.

Fig. 3 represents the theatre of Sĕgesta in Sicily [situated near the crest of a hill. The lower part of the *auditorium* is in nearly perfect preservation. The structure



2*' .!-D*.3' /,' &16!33!/4!' & ' 1!1' 4/.' !41!-&.*' &45' 7&(.!-0;&(' 3*&.' <..' /4;5' .2 I' <;/-D' /,' 3*&.3' &41' .2*' (/A' !4' A2!-2' !.' A/0;1' <*' ,/041' 4' &A4!4>' -/0;1' <*' 1(&A4' /=*(' .2*' A2/;*' '*' !.' A&I' 3037*41*1' /4' 6&3.3' A2!-2' A*(*' 6&1*' ,&3.' ./' .2*' *0.*(4&;' A&;;' /,' .2*' .2*&.(*' 4' /(1*(' ./' -//;' .2*' &.6/372*(*' &41' 7(*=*4.' 1!3&>(**&<;*' /1/0(3' ,(&>(&4.';!:0!13' 8*37*F -!&;;5' A&.*('3-*4.*1' A!.2'3&,,(/49' A*(*' 32/.' !4./' .2*' &!(' &41' ,*;;' !4' ,!4*' 37(&5' /=*(' .2 I'

2*' ,&-&1*' /,' .2*' 3.&>*"<0!;1!4>' .2*' " ' -/43!3.*1' >*4*(&;;5' /,' .2(**' 3./(!*3' &41' A&3' (!-2;5' 1*-/(&.*1' A!.2' &(-2!.*-F .0(*' &41' 3-0;7.0(*' 2*' 3.&>*' !.3*;,' 87..L" ' A&3' (&!3*1' ,!=*' ,**.' &.' .2*' 6/3.' &</=*' .2*' /(-2*3.(&' !4' /(1*(' .2&.' .2*' 37*-.&./(3' 6!>2.' *&3!;5' /=*(;//D' *=*(5' 7&(.' /,' !.' .' A&3' -/43!1*(&<;5' ;/4>*(' &41' A!1*(' .2&4' .2*' (**D' 3.&>*' &3' !4' .2*' /6&4' .2*&.(*' .2*(*' A*(*' 4*&(;5' &3' 6&45' &-./(3' &3' 7&(.3' &41' .2*' /6&43' A*(*' =*(5' ,/41' /,' 37;*41!1' 3.&>*"7(/-*33!/43' 2*(*' A*(*' .A/' &;.&(3' /4' .2*' 3.&>*' /4*' 1*1!-&.*1' ./' !<*(' !4' (*6*6<(&4-*' /,' .2*' !/453!&4' /(!>!4' /,' .2*' 1(&6&' .2*' /.2*(' ./' .2*' >/1' !4' A2/3*' 2/4/0(' .2*' 7;&5' A&3' 2*;1

!.2' (*>&(1' ./' .2*' 3-*4*(5' A2!-2' -*(F .&!4;5' -&44/.' 2&=*' <**4' !4.(/10-*1' <*,/(*' TT' □ % &41' .2*' 3-*4*"32!,.!4>' ,/(' A2!-2' *;&</(&.*' 6&-2!4*(5' /,' =&(!/03' D!413' *OF !3.*1' .2*' /6&4' 3.&>*' 1!1' 4/.' *33*4.!&;;5' 1!,,*(',(/6' .2*' (**D' *0-*7.' .2&.' !.' 2&1' &-0(.&!4' 2!3' -&;;*1' H ' A&3';/A*(*1' &.' .2*' <*>!44!4>' /,' .2*' 7;&5' !43.*&1' /,' <*!4>' 1(&A4' 07' &3' A!.2' 03' &41' !.' A&3' 4/.' (&!3*1' &>&!4' 04.!;' .2*' *41M .2*(*' A&3' &;3/' &' 36&;;*(' -0(.&!4' + ' A2!-2' 3*(=*1' &3' &' 1(/7"3-*4*' ' 7/(.!-/' A&3' /,.*4' <0!;' <*2!41' .2*' 3.&>*' ./' &,,/(1' 32*;.*(' ./' .2*' 37*-.&./(3' !4' <&1' A*&.2*(

216;3' 4*' /,' .2*' !.&4,1?3" 1&0>2.*(' /,' (T403' &41' 6&' &41' 07!.*(3' 3*-/41' A!,*' &,.*(' *.!3' 6/.2*(' /,' .2*' /(3*' &41' /*(3' 8 &.' , ' 2*' !3' .2*' >/11*33' A2/' A!.2' 07!.*(' 7(*3!1*3' /=*(' ;&A' &41' /(1*(' 2*' &;3/' (*!>43' A!.2' 2!4&' !4' ;56F 703' &3' 2!3' .(03.*1' &33*33/(' &41' 4/' ;/4>*(' &3' 2!3' A!,*' 32*' (*7(*3*4.3' 1!=!4*' K03.!-*' !4' &;;' !.3' (*;&.!/43' ./' 6&4' 2*' (!>2.3' /,' 2/37!.&;!.5' &(*' *37*-!&;;5' 041*(' 2*(' 7(/F .*-.!/4" 2*4-*' 32*' !3' 7(/.*-./(' /,' .2*' /77(*33*1' &41' 2/4/0(*1' !4' 6&45' ./A43' &3' .2*' 3&=!4>' >/11*33' & ' 2*' &;3/' 2&1' .2*' 7/A*(' /,',/(*.*;!4>' .2*' ,0.0(*' &41' ,/(' .2!3' (*&3/4' .2*' *;72!-' /(&-;*' A&3' !4' 2*(' 7/33*33!/4' ,/(' 3/6*' .!6*' <*,/(*' !.' -&4!*' !4./' .2&.' /,' 7/;;/' 2*' A&3' *37*-!&;;5 2/4/0(*1' !4' .2*43' *;72!' 2*<*3' ;56F 7!&' &41' (-*Q*4' 4' A/(D3' /,' &(.' 32*' !3' (*7(*3*4.*1' &3' &' A/6&4' /,' -/66&41!4>' &41' &A*"!437!(!4>' 7(*3*4-*' 2/;1!4>' &' 7&!(' /,' 3-&;*3' &41' &' " ' .2*' 356</;' /,' .2*' <;*33!4>3' /,' /(1*(2 6!3.!03' ' (**D' (2*./(!-!&4' /,' &72;&>/4!&' A2/' ;!=*1' !4' .2*' 3*-/41' 2&;,' .2*' >?' -*4.0!5' ' &3' .*&-2*(' /,' 72!;/3/725' &41' /(&./(5' &.' /43.&4.!4/7;*' *' A&3' 60-2' 2/4/0(*1' <5' 2!3' -/4.*67/F (&(!*3' ,/(' 2!3' 4/<;*' 1!37/3!.!/4' &41' 2!3' ;*&(4!4>' &41' *;/:0*4-*' A2!-2' >&!4*1' ,/(' 2!6' .2*' 4&6*' /,' 9 (' /(' *;/:0*4.' 37*&D*(' *' A&3' 2/4/0(*1' A!.2' =&(!/03' 6&(D3' /,' 1!3.!4-.!/4' <5' .2*' *67*(/(3' /43.&4.!43' 6&1*' 2!6' &' 3*4&./(' 0;!&4' 1*3-(!<*1' 2!6' &3' .2*' ,!(3.' 72!;/3/72*(' /,' 2!3' &>*" 2*/1/3!03' 3*;*-.*1' 2!6' &3' .0./(' ./' 2!3' 3/4' (&1!03' &41' !4' RC' 4/6!4&.*1' 2!6' ./' .2*' 7(*,*-.0(*' *' 1!*1' &</0.' RR 2!(.5",/0(' /,' 2!3' 37**-2*3' 2&=*' <**4' 7(*3*(=*1' /4*' /,' .2*6' !4' &' &.!4' .(&43F ;&.!/4' /4;5' 2*5' &(*' 7&(.;5' 72!;/3/72!-&;' &41' 7/;!.!-&;' <0.' 7(!4-!7&;;5' *0;/>!3.!-' /(&./43' *!.2*(' !4' -/67;!6*4.' ./' /(' !4' 6*6/(5' /,' =&(!/03' *67*(/(3'-/67/3*1' !4' &'-;*&('7;*&3&4.'3.5;*' &41' =&;0&<;*' ,/(' .2*' !4,/(6&.!/4' .2*5' -/4.&!4' (*37*-.!4>' -/4F .*67/(&(5' 2!3./(5' *3!1*3' .2*3*' A*' 7/3F 3*33' ,/0(' 7&(&726 3*3' <5' 2!6' /,' 7&(.3' /,

2 6!3./' 2*' .2!(1' A!,*' /,' .2J6J3' 8K / 9' A2/' 6&((!*1' 2*(' 41*(' .2*' !67(*3F 3!/4' .2&.' 2!3' A!,*' 7/' A&3' 1*&1' 2*4' 2*' 2*&(1' 2/A*=*(' .2&.' 4/' A&3';!=!4>' &3' &' =/.&(5' /!' !/45303' !4' .2*' (&=!4*3' /,' &(F 4&3303' 2*' 3*-(*.;5' 3*4.',/(' 2*(' 2*6!3./' /4' 2*&(!4>' .2!3' 1*.*(6!4*1' !4' (*=*4>*' ./' D!;;' 4/3' -2!;1(*4' &41' /(1*(*1' &' 3;&=*' A2/' 2&1' ;&.*;5' -/6*' ./' .2*' 2/03*' ./' 1(*33' 2*(' -2!;1(*4' !4' A2!.*' &41' 4/3' !4' <;&-D' 3/' .2&.' 32*' 6!>2.' <*' &<;*' ./' 1!3.!4>0!32' .2*6' !4' .2*' 4!>2.' 0.' .2*' 3;&=*' A2/' A&3' 4/' 2*(3*;,' 3037*-.!4>' .2*' *=!;' !4.*4F .!/4' *0-2&4>*1' .2*' -;/.2*3' 2*6!3./' !4' -/43*:0*4-*' D!;;*1' 2*(' /A4' -2!;1(*4' &41' /4' <*-/6!4>' &A&(*' /,' 2*(' 6!3.&D*' 3;*A' 2*(3*;,' &;3/

2*6!3.!>*4*3' ,' 5(&-03*' 3077/3*1' 8/4' !4&1*:0&.*' >(/0413' ./' <*' .2*' &0.2/(' /,' .2*' " ' A2!-2' 2&3' -/6*' 1/A4' ./' 03' 041*(' .2*' 4&6*' /,'] 4172 4' #]2*1-!56 463' /4' /,' .2!' 3//.23&5*(' 1!572!1*3' >(&413/4' /,' >;&6703' 2*4' &',0>!.!=*' ,(/6' (>/3' ,/('&' 60(1*(' A2!-2' 2*' 2&1' -/66!..*1' 2*' 6*.' A!.2' *;*6J-203' !4' 5!03' A2/' 30--/0(*1' 2!6' &41' <(/0>2.' 2!6' ./' .2&-&' ħB6*&43' /,' 2!3' !42*(!.*1

>!,.' /,' 7(/72*-5' 2*' 2*(*' 6&1*' D4/A4' ./'
4 ; 7' .2*' KB*3*4-*' /,' 1533*03' !4' .2*'
!3;&41' &41' A&(4*1' .2*' 30!./(3' /,' .2*!('
,&.*

2??-(;...3' 2*' ,/041*(' &41' 7(!4-!7&;'
(*7(*3*4.&.!=*' /,' (**D' <0-/;!-' 7/*.(5'
</(4' &</0.' @V' '' !4' 5(&-03*' /(' 8&-F
-/(1!4>' ./' &4/.2*(' &--/04.9' !4' .2*' !3;&41'
/,' 3' 707!;' /,' .2*' 7/*.' 2;;*.&3' &41'
,(!*41' /,' .2*' 7/*.' (&.03' *' ;!=*1'
&;.*(4&.*;5' !4' ;*0&41(!&' &.' .2*' -/0(.' /,'
./;*65';';' #A((' &41' !4' !-!;5'
A!.2' !?(?'d 2*(*' 2*' A&3' 60-2' *3.**6*1'
,/(' 2!3' 7/*.!-&;' 3D!;;' &41' (*,!4*6*4.' *'
1!*1' &</0.' @?U' *3!1*3' &' 406<*(' /,'
%*7!>(&63' .2!(.5".A/' 7/*63' 3/6*' /,' -/4F
3!1*(&<;*';*4>.2'D4/A4'&3' :' 2&=*' -/6*'
1/A4' ./' 03' /6*' /,' .2*3*' &(*' 7(/<&<;5'
370(!/03' 2/3*' .2&.' &(*' 041/0<.*1;5'
>*40!4*' &(*' /,' >(*&.' 7/*.!-&;' 6*(!.' 2*5'
!4-;01*' .2*' .(0*' <0-/;!-' !15;;3' 1*3-(!7.!=*'
/,' .2*';!,*' /,' 32*72*(13'&41'2*(136*4'&41'
&;3/'.2*'1 " '7!-.0(*3'/,'*=*(5"1&5';!,*'&41'
/,' .2*' 65.2!-&;' &>*' ./>*.2*(' A!.2' 2564 3'
&41'*0;/>!3.!-'7/*63'./'2!3'7(!4-*;5'7&.(/43'
&4' M ' !4' 2/4/0(' /,' *;*4' &41'
3/6*'7!*-*3' !4' ;5(!-&;',/(6' !3'7/*63'/,'
/(1!4&(5';!,*' &(*' *37*-!&;;5'(*6&(D&<;*',/('
.2*!(' 6!40.*;5',&!.2,0;' &41' 1(&6&.!-' 1*F
3-(!7.!/43' /3./,' 2!3' !15;;3' &(*' A(!..*4'
!4' &' ;&(>*;5' 6/1!,!*1' *7!-' ;&4>0&>*' A!.2'
&' 3D!;,0;' &16!0.0(*' /,' .2*' ,/(63' /,' .2*'
/(!-' 1!&;*-.' 37/D*4' !4' !-!;5'A2!-2' 3.!;;'
,&(.2*(' *42&4-*1' .2*!(' 7/70;&(' -2&(&-.*('
A/' /,' .2*' ;5(!-&;' 7/*63'f00=!!!'00!0g'&(*'
-/67/3*1'!4'.2*') /;!-'1!&;*-.

2 J1*-. 3' ' 2T3`; 3!4 5-!& & (**D'
(2*./(!-!&4' &41' .(&>!-' 7/*.' *' -&((!*1'
%/,;' .2*' 7(!Q*' *!>2.' .!6*3' &41' !4' RV$' /'
2!3' .(&>*15'/,' ' (' A&3' =!-./(!/03'!4'
.2*' .(&>!-' -/4.*3.' !43.!.0.*1' <5' :0**4'
(.>6!3!&' !4' 2/4/0(' /,' 2*(' 1*-*&3*1' 203F
<&41' &03/;03' 4'.2*' (2*./(!-&;' -/4.*3.'
2*;1'&.' .2*'3&6*'.!6*' 2*' A&3' 1*,*&.*1' <5'
2* 7/6703' 4;5'04!67/(.&4.',(&>6*4.3'
/,' 2!3',!,.5'.(&>*1!*3'&(*'*0.&4.

2 S1/63' 8$9' ' 6 3'3/4'/,' 26-03'
4' -/4K04-.!/4' A!.2' 2!3',&.2*(' 2*' *(*-..*1'
.2*';&<5(!4.2'/,' *64 3'f ;!45'>' '000=!'
TNg'&41'&1=!3*1'.2*';&5!4>'1/A4'/,'&';&5*('
/,' -2&(-/&;'&3'7&(.'/,'.2*',/041&.!/4'/,'.2*'
.*67;*' /,' (.*6!3' &.' 72*303'f !/>*4*3'
&*(.!03'!!'$N g' *' !3'3&!1'./' 2&=*' ;!=*1'
,/(' &' ;/4>'.!6*' !4' >57.' A2*(*' 2*' &41'
2!3' <(/.2*(' *; -;*3' ;*&(4.' .2*' >57.!&4'
-&4/4' /,' 7(/7/(.!/4',/(' .2*' 206&4',!>0(*'
8 !/1/(03'!'TRg' *' A&3'-/43!1*(*1'<5'.2*'
(**D3'&3'/4*'/,'.2*'!4=*4./(3'/,'-&3.!4>'!4'
<,/4Q*'f &03&4!&3'=!!!'$C'Rg' *' A(/.*
&' A/(D'/4'.2*' .*67;*' /!' 4*(&' &.' /&6/3'
A2!-2'A&3'<B04'<5'2!3',&.2*('f *(/1/.03'
!!!'?N'' !.(0=!03'=!!'7(*,' $@g
8@9' /4' /,' *;*-;*3' &41' 4*72*A' /,' 8$9'
*' ;,;/0(!32*1'!4'.2*' .!6*' /,' (/*303'&41'
?;B-(J.*3'A2/3*' (!4>'2*' 6&1*' f *(/1/F
.03'!'V$'!!!'C$$' f ' ' g
2 />4;3' ' (**D' *;*>!&-'7/*.' </(4'
&</0.'VCN' ' /,' &' (!-2' &41'4/<; ',&6!;5'
!4' *> (' *' ;!=*1'&.'&'.!6*' A2*4'<!..*('
,*013'2&1'<(/D*4'/0.'!4'2!3'4&.!=*' ./A4'
<*.A**4'.2*'4/<;*3'&41'.2*'/.2*(' -!.!Q*43'
4'.2*',&;;' /,' 2!3'7&(.5'2&=!4>'*37/03*1'
.2*' -&03*' /,' .2*' &(!3./-(&-5' 2*' A&3'1*F
37/!;*1'/,'2!3',/(.04*'&41'1(!=*4'!4./'*0!;*'
.'A&3'4/.'04.!;' 6&45'5*&(3';&.*(' .2&.' 2*'
A&3'&<;*' ./' (*.0(4'./' .2*' 2/6*' ,/('A2!-2'
2*'5*&(4*1'&41'2*'A&3'7(/<&<;5'3.!;';&;!=*'
&.' .2*' .!6*' /,' .2*' *(3!&4' &(3' (/6'
.2*'(*6&!43'/,'2!3'*;*>!*3'A2!-2'&(*'6/3.;5'
&11(*33*1'!4'&'2/(.&./(5',/(6'./'.2*'4/<;*'
5/0.2' 5-403'!.'6&5'<*'3**4'.2&.'.2*5'A*(*'
-;/3*;5'-/44*-.*1'A!.2'.2*'7/;!.!-&';,/(.04*3'
/,' .2*' 7/*.' 2*5' *02!<!.' .2*' 7(!*'&41'
(&4-/0(' /,' .2*' &(!3./-(&.'!4'A2/3*'*5*3'&;;'
2!3' /A4'7&(.5'&(*'H'>//1'I'&41'P'4/<;*'I'&3'
-/4.(&3.*1'A!.2'.2*'&12*(*4.3'/,' .2*'7/70F
;&(' 7&(.5'A2/' &(*' 1*4/04-*1' &3' d<&3*'I'
&41'H'-/A&(1;5'I' 2*' ;/33' /,' .2*' >(*&.'
<0;D'/,' 2!3'7/*63'A&3'10*'./'.2*!('-/4.&!4F
!4>'&4'*0.(&/(1!4&(5'&<041&4-*'/,'7(/=*(<3'
A2!-2'A*(*'&.'&4'*&(;5'1&.*'*0.(&-.*1',/(6'
2!3'A(!.!4>3'./'3*!=*'8*37*-!&;;5'&.' .2*439'
&3'7(*-*7.3' ,/(' .2*' -/410-.' /,' 5/0.2'
41*(' 2!3'4&6*'A*'3.!;;' 7/33*33'&' 1(*&(5'
-/;;*-.!/4' /,' &;;' D!413' /,'7(/=*(<!&;' -/07F
;*.3'&41'7(*-*7.3'A2!-2'&(*3.(04>./>*.2*('
A!.2/0.'-/2*(*4-*' /('7;&4'<*!4>' -/44*-.*1'
<5' 6*&43' /,' 6*(*;5' -&30&;' -&.-2A/(13'
&41' !4-;01!4>'&1=*4.!.!/03'*;*6*4.3'30-2'
&3'3&5!4>3'/,' 5(..*03' !64*(603' ?;?4'
&41'./.2*(3

2V/4' 8$9'SE' ' ' (**D' " '
A2/',;/0(!32*1'!4'.2*'3*-/41'2&;,'/,'.2*'C.2'
-*4.0(5' ' !3'7!-.0(*3'A*(*' -*;*<(&.*1'
,/(' .2*!('7/A*(,0;'*,,*-.'/4'.2*'!6&>!4&.!/4'
A2!-2'-&03*1'.2/3*'A2/' ;//D*1'&'.2*'6'./'
,/(>*.'.2&.'.2*5'A*(*' /4;5' -/04.*(,*1.3'/,'
(*&;!.5' 2*' 7!-.0(*' /,' &' 5/04>'2/7;!.*'
-2&(>!4>'.2*' *4*65'A&3' *37*-!&;;5' -*;*F
<(&.*1' ,/(' .2!3' *,,*-.' /,' !;;06/4'fB;!&4'
=' '!!'CCg

8@9' ' : " ' A " ';!=!4>'!4'
.2*',!(3.'2&;,'/,'.2*' @41'-*4.0(5' ' *'
A&3'.2*'&0.2/('/,'&'A/(D'/,'>(*&.'=&;0*'!4'
-/44*0!/4'A!.2'&4-!*4.' (**D'&(!.26*.!-!'
/4'.2*'7(!4-!7;*3' /,' 6&.2*6&.!-3'603!-'
&41'&3.(/4/65'(*:0!(*1' ,/(' .2*' 3.015'/,'
;&./

((' /4' A2/6 ' &3' &;3/' /4' 2!3' -/6F 7&4!/43' # :" (' 1*=/;=*1' .2*' 2/4/0(F &<;*' &41' 7&.(!/.!-' 10.5' /,' &77*&(!4>' A!.2' .2*' 0.6/3.' 37;*41/0(' 4' .2*43' .2*' (' (' &3' /4*' /,' .2*' 1 ' 041*(.&D*4' <5' .2*' A*&;.2!*(' -!.!Q*43 ' 9 ') ' 2*' 6*6<*(3' /,' .2*' 3&-!*1' *6<&335' A*(*' .(*&.*1' &3' 2/4/0(*1' >0*3.3' <5' .2*' .&.*' ./' A2!-2' .2*5' A*(*' 1*70.*1

2 1(!-14'8H'.2*&.(*"6/4*5'I9% '1!3.(!<0F .!/4' /,'.A/' /</;3'8&</0.' 8@9&' 2*&1'>(&4.*1' ,(/6' .2*' .!6*' /,' *(!-;*3' ./' .2*' 7//(*(' .2*4!&4' -!.!Q*43' ,(/6' .2*' -/66/4' A&("' -2*3.'83**' / & 9 ' ./'*4&<;*' .2*6' ./' &..*41' .2*'(*7(*3*4.&.!/43'&.'.2*'.2*&.(*' .A/' /</;3' <*!4>' .2*' *4.(&4-*' ,**' ;*=!*1' <5' .2*' ;*33**3' /,' .2*' .2*&.(*' 5' 1*>(**3' .2!3' >(&4.' A&3' 1!3.(!<0.*1' ./' -!.!Q*43' A2/' ;&!1'-;&!6' ./' !.' !4' .2*' -&3*' /,' /.2*(' *4.*(F .&!46*4.3' .' A&3' &</;!32*1' ./A&(13' .2*' *41' /,' .2*' *;/7/44*3!&4' &(' <...' &>&!4' !4.(/10-*1' &,.*(' .2*' (*3./(&.!/4' /,' .2*' 1*6/-(&-5" &41' '37*-!&,'041'./'A2!-2'<5' &'1*-(**' /,' .2*' 7*/7;*' .2*' A2/;*' 30(7;03' /,' .2*' (*=*40*' A&3' ./' <*' 1*=/.*1' A&3' 3*.' &7&(.' ,/(' .2!3' 70(7/3*' 041*(' &' 37*-!&;' </&(1' A2/' 2&1' *=*4' ,/(' &' .!6*' .2*' 6&4&>*6*4.' /,' .2*' ,!4&4-*3' /,' .2*' .&.*' *6/3.2*4*3' ,!(3.'30--**1*1'32/(.;5'<*,/(*' .2*' <&..;*' /,' 23*(4*&'8 R' 9'!4'70..!4>' &4' *41' ./' .2!3' 353.*6' A2!-2' 3/' 3*=*(*;5' .&O*1' .2*' (*3/0(-*3' /,' .2*' .&.*!4' .!6*' /,' A&(

2*/O 4;J' 8H'*4.*(.&!46*4.3' >!=*4' ./' .2*' >/13'I9% ',*3.!=&;' -*;*<(&.*1' !4' 6&45' 7&(.3' /,' (**-*' !4' 2/4/0('4/.' /4;5' /,' .2*' 7(!4-!7&;';/-&;' 1!=!4!.5'<0.'/,' 6&45' /.2*(3' A2/' A*(*' -/43!1*(*1' &3' 2!3' >0*3.3' 0-2' A&3' .2*',*&3.' 2*;1' &.' *;72!' !4' 2/4/0(' /,' 7/;;/'!4'.2*' 6/4.2' 2*4-*'-&;;*1'+(- " 8 0>03.9' ,' .2*' 6&44*(' /,'!.3' -*;*<(&.!/4' 4/.2!4>'!3'D4/A4' !3.!4>0!32*1' 6*4'30-2' &3' !41&(' &41' 2!3' 1*3-*41&4.3' A*(*' &;3/' !4=!.*1' ./' .2*' 3&-(!,!-!&;',*&3.' ;3*A2*(*' /.2*(' >/13' &77*&(*1' &3' 2/3.3' &.' .2*' ,*&3.' &3' .2*' !/3-0(!' .2*' 7&.(/43' /,' 2/37!.&;!.5' !4' ,.(3' &41' >(!>*4.06

2`(!.&3' 8H .2*' 3&=&>*' /4*1 9' ' 4&6*' >!=*4' &.' 7&(.&' ./' (*3' 8

2*(63' 2*'4&6*'>!=*4'<5'.2*' /6&43' ./' .2*' 70<;!-' <0!;1!4>3' ,/041*1' !4' &41' &,.*(' .2*' .!6*' /,' >(!77&' A2!-2' -/6<!4*1' A!.2' @ ' (' .2*' &((&4>*6*4.3' /,' &6 ' 1: " ' 2*3*' !4-;01*1' /7*4' &41' -/=*(*1' -/;/44&1*3',/(' -/4=*(3&.!/4' !4F 3.(0-.!/4' &41' 1!,,*(*4.' *0*(-!3*3' *37*-!&;;5' .2*' >&6*/,' <&;' 2*' 6/3.' *0.*43!=*' &41' 37;*41!1' *3.&<;!32 6*4.3' /,' .2*' 3/(.' A*(*' ./' <*' ,/041' !4' /6*' &41' &(*' 3.!;;' ./' <*' 3**4 .2/0>2',/('.2*' >(*&.*(' 7&(.' !4' (0!43' ,' .2*' *0!3.!4>' (*6&!43' .2*' 6/3.' !67/(.&4.' &(*' .2/3*' /,' .2*' +(' ' $ ' #$ ' ((',!>' $C' 7' V?" &41' ' ?

2*(3&41*(' 8 (' +(" ' /4' /,' ?;54!-`3'&41' (>*!&'203<&41'/,' *6/4&33&' .2*' 1&0>2.*(' /,' 672; (&03' &41' D!4>' /,' 2*<*'3' &,.*(' .2*' .&D!4>' /,' .2&.' -!.5' <5' .2*' 7!><4!' ' --/(1!4>' ./' 7/3." /6*(!-' .(&1!.!/43' 2*' .//D' 7&(.'!4' .2*' *07*1!.!/4' &>&!43.' (/5'<0.'A&3'D!;;*1'/4',!(3.';&41!4>' <5' ; 7203' 4' *(>!;' fH' 2*33&41(03 I' " ' !!' @?$g' /4' .2*' /.2*(' 2&41' 2*' !3' /4*' /,' .2*' 2*(/*3' /,' .2*' A//1*4' 3*' !3' 3/4' &41' 30--*33/(' A&3' !3&6 403' !3' >(&413/4' 0. 3/4' &.' .2*' <!11!4>' /,' .2*' /(&-;*' A*4.' /=*(' ./' .2*' /(!&43'A2/' 2&1' 3*..;*1' !4' &-*1&*6/4'' &41' 2!3' >(*&.'' >(&413/4' 2*(&3',/041*1' &' -/;/45'!4' .2*' !3;&41' /,' &;;!3.*' A2!-2',/(6' .2&.' .!6*' A&3' -&;;*1' 21(&' .' A&3',/(6'<!6' .2&.' 2*(' 4' .2*' .5(&4.' /,' >(!>*4.06'!4' !-!;5' .(&-*1'2!3'1*3-*4.

2*(3;.*3' 2*' 6/3.' !;;",&=/0(*1' /,' .2*' (**D3'&33*6<;*1'<*,/(*' (/5'&41' &;3/' &' 6&4' /,' *=!;' ./4>0*' *' A&3' 3*=*(*;5' -2&3.!3*1'<5' 1533*03' W'' ' !!' @$@"@UUg',/(' 37*&D!4>' *=!;' /,' >&6*64/4' --/(1!4>' ./' ;&.*(' .(&1!.!/4' -2!;;*3'3;*A'2!6'A!.2' &<;/A' /,' 2!3',!3.';/(' 3.&<<!4>'!4' .2*' *5*' .2*' 6&Q/4' *4.2 3!;*&' A2/6' 2*' 2&1' 2!63*;' ;&!1' ;/A' &41' &;3/' ,/(' ,&;3*;5'&-<03!4>' -2!;;*3' fSO!4.03' 6563*03' I' U?R" @ g

2*3&0(03' 2*' (**D' .*(6',/(' &' (//6' !4' A2!-2' &;;' D!413' /,' /<K*-.3' 7(/=!3!/43' K*A*;3' *.- ' A*(*' 3./(*1' 2*4-*' &' H' .(*&F 30(5'I'/('H'.(*&30(*'2/03* I' 4'/(1!4&(5';!,*' .2*' 041*(>(/041' 3./(*"-2&6<*(3' -!(-0;&(' =&0;.*1' (//63' A!.2' &4' /7*4!4>' &</=*' 3!6!;&(' ./' /0(' -*;;&(3' A*(*' .203' 4&6*1' 2*' 3&6*' 4&6*' A&3' >!=*4' ./' .(*&30(*" 2/03*3' A2!-2' *&-2' .&.*' 6&!4.&!4*1' A!.2!4' .2*' 7(*-!4-.3' /,' &42*;;*4!-' 3&4-.0&(!*3' &3' (*7/3!./(!*3' ,/(' .2*!(' /,,*(!4>3' ./' .2*' >/13' 0-2' A*(*' .2/3*' &.' ;567!&' &41' *;72!' 2*' 30<.*((&4*&4' ./6<3' 32&7*1' ;!D*' <**2!=*3' &41' /,' &' -/43.(0-.!/4' 1&.!4>' ,(/6' (*6/.*' (**D' &4.!:0!.5' A2!-2' 2&=*' <**4' ,/041' !4' =&(!/03' 7;&-*3' 2&=*' <**4' A(/4>;5' 1*3-(!<*1' &3' H' .(*&30(*' 2/03*3 I' 2*' 6/3.' -*;*<(&.*1' /,' .2*3*' &.*' .2*' 3/' -&;;*1' (' .(*03' &.' B-*43*' # ' (( ) ',!>' 9' &41' .2&.' /,' ;45&3' &.' (-2<6 403' # ') ' 2*' ;&..*(' !3' /4;5' 7&(.;5' .2*' ,/(6*(' A2/;;5' 7(*3*(=*1' 2*' >(/041"7;&4'/,'.2*3*' 3.(0-F .0(*3' !3' !(-0;&(' &41' -/43!3.3' /,' /4*' *4-;/3*1' (//6' A!.2' & 1/6*1' (//,' -/4"

3.(0-.*1 /, 2/(!Q/4.&; ;&5*(3 /, 6&33!=*
3./4*<;/-D3 7(/K*-.!4> /4*/=*(.2* /.2*(
2!3 -!(-0;&(-2&6<*(b=&3 03*1 7(/<&<;5
,/(3*(=!-*3 !4 2/4/0(/, .2* 1*&1 2*
&-.0&; (*3.!4>"7;&-* /, .2* </15 A&3 &
3:0&(*/(//6 &1K/!4!4> 2* ;&(>*(//6 &.
5-*4&*!3,!,.5,**.!4 1!&6*.*(&41 &</0.
.2* 3&6* !4 2*!>2. . -/43!3.3 /, .2!(F
.**4 -/0(3*3 .2* 077*(6/3./, A2!-2 A&3
/4;5 &3!4>;* 3./4* .A&3 1*-/(&.*1 A!.2
2041(*13 /, <(/4Q* 7;&.*3 .2* 2/;*3 ,/(.2*
4&!;3 <*!4>3.!:;=!3!<;*

2*3 03 2* *(-:*3 /, ;/4!&4" ..!-
,&<;** 3/4 /, .2(& &41 .2* .2*4!&4
D!4> >*03 /(&--/(1!4>./ &4/.2*(3./(5
23*!1/4 >*03 2&=!4>-/430;.*1 .2*
/(&-;* &. *;72! !4 -/43*:0*4-* /, </.2
2!3 6&((!&>*3 7(/=!4>-2!;1;*33 &41 2&=!4>
(*-*!=*1 &4 /<3-0(* (*7;5 &77;!*1./ .2*
A!3* !..2*03 /, (-*Q*4 A2/ >&=* 2!6
2!3 1&0>2.*(.2(& !4 6&((!&>* 4 2!3
(*.0(4./ .2*43 2* ;&!1 2!3 3A/(1 &41
32/*3 041*(& (/-D &41 -2&(>*1 .2(& &3
3/4 &3 2!3 3/4 A&3 &<;* ./ ;!,. !. ./ 3*41
2!6 A!.2 .2*3* ./D*43 ./ .2*43 2*4
2*3*03 A2/ 2&1 <**4 *10-&.*1 <5 2!3
>(&41,&.2*(2&1 &..&!4*1 .2* &>* /,3!OF
.**4 &41 2&1 1*1!-&.*1 2!3,/(*;/-D3./ .2*
*;!&4 /(*;72!- 7/:;/ 2!3 6/.2*(-/4F
10-.*1 2!6./ .2* 3./4* * 2* ;!,.*1 !. A!.2
&3 &41 3*. /0. ./ >/ ./ 2!3 ,&.2*(&.
.2*43 <*&(!4>.2* 3A/(1 &41 32/*3 4
.2* A&5 2* 2&1 & 3*(!*3 /,*&1=*4.0(*3 A!.2
=&(!/03 6/43.*(3 B,(/6 A2!-2 2* *6*(>*1
=!-./(!/03 . 7!1&0(03 2* =&4:0!32*1
,!(;72*.*3# 9 /4.2* 3.2603/, /(!4.2
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/, !77/;5.03 --/(1!4>./ &4/.2*(.(&F
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*A&3 A/(32!77*1 &3 &2*(! &. .2*43 5*. !. A&3 4/.04.!; &,.*(.2* *(3!&4 &(.2&. .2* (*=*(*4-* 7&!1 2!6 &3306*1 &6/(* !67/(.&4. ,/(6 A2*4 2* !3 3&!1 ./ 2&=* <**4 3**4 &. .2* <&..;* /, &(&.2/4 !4 ,0;; &(6/0(&. .2* 2*&1 /, 2!3 -/04.(5F 6*4 /4*3 3077/3*1 ./ <* 2!3 A*(* <(/0>2. <5 !6/4 ,(/6 - 00+3 ./ .2*43 &. .2* <!11!4> /, .2* *;72!-! /(&-;* !4 CU? &41 & 37;*41!1 .*67;* A2!-2 &*(=*1 &3 &4 &35;06 *37*-!&;;5 ,/(3;&=*3 &41 !4 A2!-2 70<;!- /,,!-!&;3 A*(* -2/3*4 <5 ;/. A&3 *(*-.*1 /=*(.2* 37/. A2*(* .2*5 A*(* <0(!*1 2* <0!;1!4> -/66/4;5 -&;;*1 .2* 2*3* 6 8 ('+ "! !3 & 7*(!7.*(&; 2*0&3.5;* .*67;* " 30(F (/041*1 <5 .2!(.5",/0(6/3. <*&0.!,0; /(!- %-/;0643 3!0 /4 *&-2 /, .2* 4&((/A &41 *;*=*4 /4 *&-2 /, .2* ;/4> 3!1*3 .2* A2/;* /, *4.*;!* 6&(<;* # ! . ,!> ? 9 2* ,*3.!=&; /, .2* +(!, 4/. &-.0&;;5 !43.!.0.*1 &. .2&. .!6* A&3 2*;1 &,.*(A&(13 A!.2 >(*&.37;*41/0(A!.2 -/4F .*3.3 &41 ,*&3.!4> /4 .2* *!>2.2 1&5 /, .2* 6/4.2 , ! "" 8 -./<*(" /=*6 <*(9 &41 .2* *!>2.2 /, *&-2 6/4.2 A&3 1*1!-&.*1 ./ 2!6 &3 !. A&3 ./ 2!3 1!=!4* ,&.2*(/3*!1/4 *7(*3*4.&.!/43 /, 2!3 2*(/!- 1**13 *37*-!&;;5 2!3 -/6<&.3 A!.2 .2* 6&0/43 &41 *4.&0(3 3*(=*1 !4 7&(F

.!-0;&(&3 1*-/(&.!/43 /, 70<;!- <0!;1!4>3 /*.(5 1(&6&.!- 7/*.(5 *37*-!&;;5 &41 &.((!=&;;*1 *&-2 /.2*(!4 1/!4> 2!6 2/4/0(*! 3 >*4*(&;;5 (*7(*3*4.*1 !4 A/(D3 /, &(. &3 & 7/A*(,0; <*&(1;*33 5/0.2 # $( ) ,!> U9 <0. /, 3 3;!>2.*(<0!;1 .2&4 2!3 7(/./.57* *(&-;*3 A2/3* -;0< &41 ;!/4 3 3D!4 &(* &33!>4*1 2!6 !4 ;&.*((*7(*" 3*4.&.!/43 !43.*&1 /, .2*3A/(1 A!.2 A2!-2 2* !3 &(6*1 !4 *&(;!*(.!6*3

2*36172 (; , *3.!=&; ./ *6 .*(&3 .2* ,/041(*33 /, &>(!-0;.0(* &41 /, .2* -!=!- (!.* /, 6&((!&>* -*;*<(&.*1 !4 6&45 7&(.3 /, (**-* <0. *37*-!&;;5 &. .2*43 .A&3 2*;1 &. .2*43 (/6 .2* T.2 ./ $ .2 /, 5 4*73 /4 .2* <*>!44!4> /, /=*6<*(&41 /4;5 <5 6&((!*1 A/6*4 /, >*40!4* ..!- <!(.2 &41 /, <;&6*;*33 (*70.&.!/4 A/ /, .2* A*&;.2!*3. &41 6/3. 1!3.!4>0!32*1 A/6*4 A*(* -2/3*4 /0. /, *=*(5 1!3.(!-. ./ 7(*3!1* /=*(.2* ,*3.!=&;3 .2*!(/ 10.5 A&3 ./ 7*(,/(6 .2* 3&-(*1 ,04-./!43 !4 .2* 4&6* /, .2* /.2*(3 &41 ./ 7(*7&(* .2* ,*3.&; 6*&; ,/(.2* A/6*4 /, .2*!(/A7 1!3.(!-. =*4 .2* 7(!*3.*33 A2/ 2&1 .2* -2!*, -/4F 10-. /, .2* A2/; ,*3.!=&; 2&1 ./ <* & 6&((!*1 A/6&4 4 .2* ,!(3. 1&5 /, .2* ,*&3. .2* A/6*4 A*4. !4 7(/-*33!/4 &6!1 A&4./4 K*3.3 &41 >!<*3 ./ /, 2;;6 3 /4 .2* 7(/6./(5 /, *;; 3 A2*(* 4!>2.;5 -*;*<(&.!/43 A*(* 2*;1 !4 .2* .*67;* /, *6*.!(&41 2*(1&0>2.*(?(* ,.*(.2*!((*.0(4 !4 .2* *&(;5 6/(4!4> /, .2* ,2!(1 1&5 & ,*3.!=&; ;&3.!4> ,/(.2(** 1&53 A&3 2*;1 !4 .2*43 / 3&-(!,!-*3 A*(* /,,*(*1 /4 .2* ;&3. 1&5 <0. /4* A2!-2 A&3 37*4. &6!1 ,& .!4> &41 6/0(4!4> 4 .2* ;&3. 1&5 /4 A2!-2 *6*.*(A&3 !4=/D*1 041*(.2* 4&6* /, 1 " 8/(>/11*33 /, ,&!(-2!;1(*49 & ,*&3. A&3 2*;1 &6!1 6!6!-1&4-*3 &41 >&6*3 A2!-2 7(/<&<;5 (*,*((*1 ./ .2* 65.2!-&; 3./(!*3 /, .2* >/11*33 &41 2*(1&0>2.*(

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.&4-* ./ .2* >/13 2*4 L*03 A&3 .2(*&F .*4*1 <5 *(& .2*4* &41 /3*!1/4 32* -&;;*1 ,-!&(*03 8/(K) B?49 ./ 2!3 &!1 2*4 *72&*3.03 A&3 -&3. /0. / 2*&=*4 <5 L*03 32* .//D 2!6 &41 2!1 2!6 ,/(4!4* 5*&(3 >&!4 A2*4 !/45303 A&3 .;**!4> <*,/(* 5-0(>03 32* &,,/(1*1 2!6 7(/.*-F .!/4 !4 .2* 3*& (/0>2. 07 <5 *(& 32* A&3 A//*1<5 L*03 &41 /3*!1/4 0. A2*4 2 6!3 ,/(*./;1 .2&. 2*.!3 A/0;1 <*&(&3/4 A2/ A/0;1 <* >(*&.*(.2&4 2!3 ,&.2*(32* A&3 6&((!*1 &>&!43.2*(A!;. /&6/(.&; *;*03 2!3 6&((!&>* A& .2* 3/0(-* / .2* >(*&.*3. 3/(((/A ./ 2*(*(&..*67. ./ 6&D* 2*(/4;53/4 -2!;;*3!66/(.&; A&3 ,(03.(&.*1 <5 2*(203<&41 &41 -&03*1 &4 *3.(&4>*6*4. <*.A**4 .2*6 &41 32* A&3 ,&.*1 ./ 3** 2*(>;/(!/03 &41 >/1;!D* 3/4 -0. / ,!4 .2* 7(!6* / ,;!,*

2! J343 2* (**D 1*3!>4&.!/4 / ,& B!*.5 A2!-2 2&1 *;*-.*1 3/6* >/1 ,/(!.3 7&.(/4 &41 2*;1 3&-(!,!-*3 ,*3.&; 7(/F -*33!/43 &41 <&4:0*.3 &. 3.&.*1 .!6*3 !4 2!3 2/4/0((*:0*4.;5 .2* 6*6<*(3 /, 30-2 3/-!*.!*3 A2!-2 .//D .2*!(4&6* *!.2*(,(/6 .2*!(1!=!4* 7&.(/4 /(*;3* ,(/6 .2* 1&53 /, ,*3.&; -*;*<(&.!/4 70(30*1 /.2*(-/66/4 *413 3/6*.!6*3 /, <03!4*33 3/6*F .!6*3 /, 3/-!&; ;!,* 2* 4&6* (A&3 37*-!&;;5 &77;!*1 ./ .2* ,*3.!=&;3 !4 2/4/0(/ , !/45303 &41 !4 .2* (*7(*3*4.&.!/43 /, 7/*.(5 &41 &(. ./ .2* 65.2!-&; (*.!40* /, .2* >/1 A2!-2 -/43!3.*1 /, !;*4! &.5(3 56723 &*4&13 *.-

2!3< * &

21;43 .*(6 &77;!*1 <5 .2* (**D3 ./ &45 (/041 <0!;1!4> A!.2 &-/4!-&; (//, /(-07/;& . .2*43 !.5 !41!-&.*1 .2* /.041& 03*1 ,/(.2* /,,!-!&; 2*&1":0&(.*(3 / .2* , : " & ?) A2/ &;3/1!4*1 2*(* &. .2* 70<;!-*07*43* .@ 3!.0&.*1 4*&(.2* *4&.*"2/03* # " f (!3F ./.;* $ " "* (" C g

2/(&0 2* (**D .*(6 ,/(& *!.2*(/, 6*.&; 8030&;;5</(/4Q*9/(/, ;*&.2*(2* -/43!3.*1 /, .A/3*7&(&.* 7!*-*3 /4* -/=*(!4> .2* -2*3. &41 3./6&-2 &41 .2* /.2*(.2* <&-D &..&-2*1 ./ /4* &4/.2*(<5 6*&43 /, -;&373 /(<0-D;*3 2*5 .*(6!4&.*1 A!.2 &-0(=*1 *1>* K..3. &</=* .2* 2!7 &41 &. .2!3 7&(. A*(* /,.*4 -/=*(*1 A!.2 &;*&.2*(4<*;.#06 ,&3.*4*1 A!.2 <0-D;*3 ./ <!41 </.2 7!*-*3 6 (* ,!(6;5 ./>*.2*(4/.2*(<*;. & ;!4*1 A!.2 ;*&.2*(A&3 A/(4 041*(.2* &(6/0(&41 &</=* .2* (" 2!3 A&3 ,!..*1 A!.2 & 7;&.* /, 6*.&; >(/A!4> <(/&1*(./A&(13 .2* 6!11;* &41 3*(=!4> ./ 7(/.*-.2* <*;;5 4 ;&.*(.!6*3 .2* ,(/4. 7;&.* / ,.2* -0!(&33 A&3 *0.*41*1 1/A4A&(13 3/ &3 ./ -/=*(.2* <*;;5 &3 ,&(&3 .2* 4&=*; 3 &4 &1F 1!.!/4&; 7(/.*-.!/4 ./ .2* <*;;5 &41 .2* 077*(7&(. / ,.2* ;*>3 .2*(* A&3 /4 .2* !44*(3!1* / , .2* ;/A*(*1>* / , .2* -0!(&33" & 3*(!*3 / , 32/(. 3.(!73 / , ;*&.2*(/ (,*;. -/=*(*1 A!.2 7;&.*3 / 6*.&; / ,.*4 !4 3*=*(&; ;&5*(3 2*5 (*3*6<;*1 & D!;. &41 A*(* -&;;*1 !1 8;!. H ,*&.2*(3 I9% 6&;;*(3.(!73 / , .2* 3&6* D!41 A*(* A/(4 041*(.2* &(63 ./ 7(/.*-. .2* &(6"7!.3

8U! aQ< (*1D &3*39

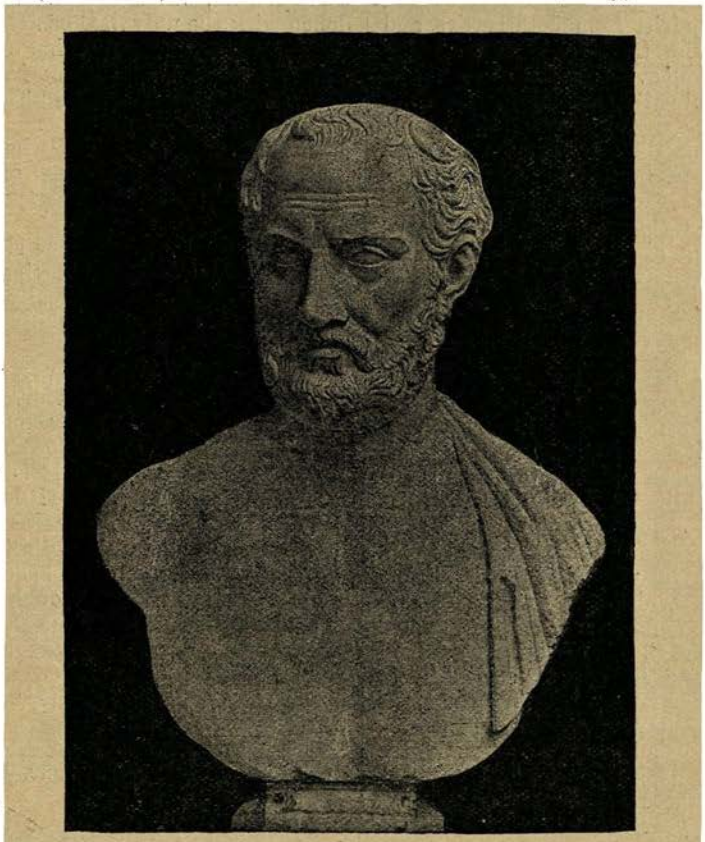
2* (# 4 A&34 D!41 / , 32!(. (*&-2!4> /=*(.2* 4&=*; &41 2!Wa3 &41 ,(!4>*1 A!.2 ,;*0!<;* 3.(!73 &;/4> !.3 ;/A*(*1>* .A&3 /7*4 *!.2*(!4 ,(/4./(/4 /4* 3!1* 8030&;;5 .2* ;*,.9 &41 A&3 .2*(* ,&3.*4*1 ./>*.2*(<5 6*&43 /, -;&373 /(<0-D;*3 .A&3 &;3/ 7(/=!1*1 A!.2 &4 07(!>2.7!*-* 7(/.*-.!4> .2* 4*-D &41 A!.2 .A/ 32/0;1*("3.(&73 .A&3 (*:0*4.;5 -/=*(*1 *!.2*(.2!-/67;*.*;5B /(/4;5 041*(.2* &(63 A!.2 6*.&; *37*-!&;;5!4 .2* ,(/4 / ,3-&;*3

; " "* &(* &;3/ 6*4.!/4*1 *=*4 !4 &4-!*4. .!6*3 2*3* A*(* 7(/<&<;5 *!.2*(.2!-D;5 :0!;.*1 /(3.(/4>;5 A/=*4 -/(3*;*.3 # -0.3 &41 -0. 041*(/

2(*4<3 2* (**D .*(6 ,/(& 1!(>* 304>5 <5 &-2/(03 ./ .2* &--/67&4!6*4. / ,;,0.*3 *!.2*(&. .2* <0(!&; /(&. .2* ,04*(&; ,*&3. %

2(*32!4> 2* (**D3 &41 /6&43 7(&-.!3*1 !4 *&(;5 .!6*3 .2* 3&6* 6*.2/1 / ,3*7&(&.!4> .2* -/6 , (/6 .2* *&(&3 /.2*(&4-!*4. 4&.!/43 .2(*32!4>",;//(-&(*F ,0;;5 7(*7&(*1 , /(.2* 70(7/3* A&3 -/4F 3.(0-.*1 !4 .2* /7*4 &!(&41 .2* -/(4 (/11*4 /0 <5 /0*4 60;*3 /(2/(3*3 1(!=*4 (/041

in a circle. Sometimes it was beaten out with sticks. The Romans sometimes used machines. One of these was the *trĭbŭlum*, a board or beam with a sharp edge of stone or iron underneath, loaded with weights on the top and drawn by oxen, which were driven by a man sitting on the handle. Another was the *plostellum Pœnĭcum*, borrowed from the Carthaginians. This consisted of several rollers or cylinders fitted with iron spikes.



* BUST OF THUCYDIDES.
(Holkham Hall, Norfolk.)

Thrīnăcĭā. A mythical island, on which the herds of the Sun-god grazed [*Od.* xi 107, xii 127, xix 275; afterwards identified with Sicily, *Trinacria*]. (*Cp.* HELIOS and ODYSSEUS.)

Thūcȳdĭdēs. The celebrated Greek historian, son of Ŏlŏrus, an Athenian, probably descended from the Thracian prince Olorus, whose daughter Hēgēsippē was the wife of Miltĭădēs and mother of Cĭmōn. He was born about 471 B.C., and is said to have been the pupil of the rhetoricians Antĭphōn and Gorgĭās, and of the philosopher Anaxăgŏrās. The earliest trustworthy notice we have of him belongs to the year 421 B.C., when we find him at the head of an Athenian fleet stationed at the island of Thăsŏs at the time when the Spartan Brăsĭdās was besieging Amphĭpŏlĭs in Thrace. He was summoned to the help of the besieged, but, on his arrival, found the place already in the hands of the enemy, and had to content himself with garrisoning the neighbouring town of Ēīōn, and securing it against Brasidas. On account of his delay in coming, he was put on his trial for treason, and banished. For twenty years he remained away from Athens. Part of this time he spent in Thrace, where he owned valuable gold-mines opposite Thasos, and part in the Peloponnesus. He probably lived for some time in Sicily. In 404, when the exiles were recalled to Athens, he returned to his

4&.!=*' ./A4'<0.'/4;5'./'<' 60(1*(*1'*!.2*('
&.' .2*43'/(' !4' 2(&-*'&' ,*A'5*&(3';&.*('
84/.';&.*('.2&4'KbN'·"
.' .2*'=*(5'<*>!44!4>' /,' .2*' *;/7/4F
4*3!&4' &(' 20-51!1*3',/(*3&A'&3'2*'2!6F
3*;,'3&53'.2&.'.2*'3.(0>>;*' A8B1'30(7&33'
&;;'*&(;!*(' A&(3' !4' 6&>4!.01*' &41' !67/(F
.&4-*'&41'&--/(1!4>;5'&.'/4-*'(*3/;=*1'./'
A(!.*' !.3' 2!3./(5' &41'<*>&4' 2!3'7(*7&(&F
.!/43',/(' 2!3'4&((&.!=*' A!.2/0.'1*;&5' !3'
<&4!32 6*4.'&,,/(1*1' 2!6' .2*' /77/(..!4!.5'
/,'-&;6;5'/<3*(=!4>' .2*'-/0(3*'/,'*=*4.3'
/,'6&D!4>'!4:0!(!*3',(/6'</.2'7&(.!*3'&41'
&3-*(.&!4!4>' .2*' .(0.2' A!.2' .4*' >(*&.*3.'
&--0(&-5' .'&;;'*=*4.3'&.'.2!3'.!6*'2*'A&3'
&;(*&15'<*>!44!4>'.2*'-/67/3!.!/4',-*(.&!4'
7&(.3',' 2!3'A/(D' *'7(/-**1*1'./'*;&</F
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,(/6'<&4!32 6*4.'<0.'2&1'/4;5'(*&-2*1'.2*'
.A*4.5",!(3.' 5*&(' /,' .2*' A&(' 8C$$9' A2*4'
1*&.2'7(*=*4.*1'.2*'-/67;*.!/4',' 2!3'.&3D
2*' *0!3.!4>' 2!3./(5' A&3' 70<;!32*1' <5'
&4/.2*(' 2&41'&41'A&3'-/4.!40*1'<5']?4?"'
72/4' &3' A*;;' &3' <5' 2B/7/6703' .3'
>*4*(&;' 7;&4'!3' 3!67;*' &41' &(.;*33'!4' .2*'
2!>2*3.'1*>(**' ,.*(' &' -(!.!-&;' *0&6!4&F
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.2*'A&(' .2*' 2!3./(5',/;;/A3' .2*' 30--*33!/4'
/,'*=*4.3'A!.2'&' 3.(!-.'1!=!3!/4' /,'*&-2'
5*&(' !4./' 306 6*(' &41' A!4.*(' 2!3' &(F
(&4>*6*4.'A2!;*' !.' 3077;!*3' 03' A!.2' .2*'
B-2(/4/;/>!-&;' 3*:0*4-*' /,' *=*4.3' !4' &4'
d&--0(&.*',/(6'3/6*.!6*3'7(*=*4.3'/0(' /<F
.&!4!4>'&' >*4*(&;'=!*A'/,' .2*' A2/;*' &41'
;*&13'./',&-.3' A2!-2' &(*' !4.!6&.*;5'-/4F
4*-.*1'A!.2'/4*'&4/.2*('<*-/6!4>'3*7&(&.*1'
<5'.2*'-/0(3*/,'.2*'4&((&.!=*
2*'6&..*(',&;;3'!4./.2(**'>(*&.'1!=!3!/43!
8$9'.2*' (-2!1&6!&4'A&('1/A4'./'.2*'7*&-*'
/,' !-;&3' C@$' ' (' 8</D3'!"='@C9" 8@9'.2*'
!4.*(=&;' /,' 1!3:0!*.' ./>*.2*(' A!.2' .2*'
>(*&.' !-!;!&4'*07*1!.!/4' 1/A4'./'C$' 8='
@V"=!!9" 8 9'.2*' *-*;*&4' A&(' /,' A2!-2'
.2*',!(3.'.A/' 5*&(3' &;/4*' &(*' !4-;01*1'!4'
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&;/4*' &(*' 6&(D*1' <5'*=*4' &41' 04!,/(6'
0-0.!/4' *0.'./'.2!3'7&(.'!4'*0-*;;*4-*'
-/6*3'.2*'2!3./(5'/,'.2*' !-!;!&4'*07*1!F
.!/4'8=!'&41'=!!9' &('!4,*(!/(' ./' .2*'(*3.'
/,'.2*' A/(D' &(*' </D3'=' &41' 2*'
;&..*(' 7(*3*4.3'03'A!.2'/4;5'&' 3D*.-25'-/;F
;*-.!/4',' 2!3./(!-&;' 6&.*(!&;3
4' A(!.!4>' .2*' 2!3./(5'/,' .2*' *;/7/4F
4*3!&4' &(' 2!3'&!6'8&3'2*'2!63*;,'3.&.*3'&.'
.2*'<*>!44!4>',' 2!3'A/(D'A&3'./'7(/10-*'
&' 7/33*33!/4',/(' &;;' .!6*' &41' 4/.' /4;5' &
32/A5'1*-;&6&.!/4',/(' .2*';!3.*4*(3'/,' .2*'
6/6*4.' 2!3'/<K*-.'2*'2&3'&..&!4*1'3!4-*
2*',/0413'2!3'A/(D'/4' .2*' 6/3.'-&(*,0'
!4=*3.!>&.!/4' /,' ,&-.3'-&((!*1' /0.'A!.;'
6/3.'-/43-!*4.!/03'-(!.!-!36' 410*1'A!.;'
.2*' 6/3.'7*4*.(&.!4>'!43!>2.'2*'3*&(-2*3'
!4./' .2*' -/44*0!/4' &41'-&03*3'/,'*=*4.3'
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043A*(=!4>';/=*' /,' .(0.2'-&;64*33'&4-'
!67&(.!&;!.5'/,'K01>6*4.'A!.2/0.'.2*'!4-,'
1*4.&;'1!>(*33!/43'A!.2'A2!-2'.2*'2!3./(5'M
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&4'&<3.!4*4-*',(/6'&;' 7*(3/4&;' (*,;*0!/43'
2*'37**-2*3'A2!-2'&(*' !43*(.*1'!4'&--/('
1&4 *'A!.2'.2*'04!=*(3&;'-03./6'/,'&4-!*'4'
2!3./(!&43'&(*' !4' 4/' &0.2/(' 3/',&(',(/4'
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4/' 2!3./(5'&(*' .2*5' 1!3.!4>0!32*1'<5'30-;'
1*7.2'/,'72!;/3/725'&41'(!-24*33'/,'.2/0>2'
&3' !4' .2&.' /,' 20-51!1*3' A2/' 03*3' .2*4'
0-;03!=;5'A!.2' .2*' /<K*-.' /,' 04,/;1!4>'
.2*' 6/.!=*3'/,'&-.!/43'&41'*07/041!4>'.2!'
3*4.!6*4.3'/,'.2*'37*&D*(3"
' 1!37;&53'&' 6&(=;;/03'3D!;;' !4' ;0-D'
1*3-(!7.!/4'&3'!4'.2*' 2&((/A!4>'&--/04.'/'
.2*' 7;&>0*' /,' .2*43" *:0&;;5' 3.(!D!4>'!!'
2!3' !=!1' 7/(.(&!.0(*' /,' .2*' -2&(&-.*(3'/'
1!3.!4>0!32*1'7*(3/4&>*3
4' &--/(1&4-*'A!.2'2!*' 7*(3/4&;' -2&(&-'
.*(' 2!3'3.5;*' !3'>(&=*' &41'*;*=&.*1' .'1/*3'
4/.' *02!<!.' .2*' *&35',;/A' &41' -2&(6!4!'
>(&-*' /,' &' 53!&3' 3 -(&.*3']*4/72/4'/!'
;&./' 4' .2*' -/4.(&(5'!.'!3' /,.*4' 2&(3;'
&41' (0>>*1'!4.*(37*(3*1'A!.2'&(-2&!-'&41'
7/*.!-&;'72(&3*3'&41'!3' -/4-!3*'./'.2*' =*(>*'
/,'/<3-0(!.5'&41' 04!4.*;;!>!<!;!.5' 2!3' !3'
37-!&;;5'.2*'-&3*' !4'.2*' 37**-2*3'A2!-2'
A!.2'.2*!(',0;4*33'/,' .2/0>2.'&41'.2*!!'
*,,/(.'./'*07(*33'&3' 60-2'&3' 7/33!<;*' !4'.2'
,*A*3.'A/(13'&(*' &6/4>'.2*' 6/3.' 1!,,!-0;'
7/(.!/43'/,' (**D';!.*(&.0(*
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/,'.2*' 1*!,!*1' *61;*'
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4&6*'/,' !/45303'& 2=
25(303' '3.&,,'-&(F
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2!3' &..*41&4.3' & 4 1 +') '
A(*&.2*1'A!.2'!=5
=!4*";*&=*3'.*(6!4&.!4>'&.'.2*'./7'!4'&'7!4*'"
-/4*' . '-0.'&41'-7' ! 3',!>' 9

;< (!!(&3 2*' >/1' /,' .4*' (!=*(' !<*(' &--/(1!4>' ./' .(&1!.!/4' &4' /;1' D!4>' /,' .2*' -/04.(5' A2/' !3' 3&!1' ./' 2&=*' <**4' 1(/A4*1' A2!;*' 3A!6 6!4>' &-(/33' .2*' (!=*(' ;<2; ' A2!-2' .2*4-*,/(.2' A&3' 4&6*1' !<*(' #+ 2' &,.*(' 2!6' 2*' /6&4' ;*>*413' (*7(*3*4.*1' 2!6' &3' (&!3!4>' .2*' 6/.2*(' /,' 6.!;03' &41' 603' 2*&' !;=!&' A2/' 2&1' <**4'.2(/A4'!4./'.2*' !<*!B'./'.2*' 7/3!.!/4' /,' 2!3' -/43/(.' &41' /,'>/11*33' /,'.2*' 3.(*&6' 3' .2*' (!=*(' A&3' /,' >(*&.' !67/(.&4-*' ./' /6*' .2*' (!=*(">/1' A&3' 2!>2;5' 2/4/0(*1' &41' A&3' !4=/D*1' <5' .2*' &41' &0>0(3' !K+' .2*!(' 7(&5*(3',/(' .2*' A*;,&(*' /,' .2*' .&.*' !3' 32(!4*' A&3' /4' .2*' !3;&41' /,' .2*' !<*(' A2*(*' /,,*(!4>3' A*(*' 6&1*' ./' 2!6' /4' *-' R.2' 4' 04*' U.2',!32*(6*4' -*;*<(&.*1' 37*-!&;'>&6*3' !4' 2!3' 2/4/0('# . < ' /4' .2*' /77/3!.*' <&4D' /,' .2*' !<*(' 41*(' .2*' 4&6*' /,' = ' ! *' P' .2*' (/;;!4>' 3.(*&6 I' /(' H' (!=*(' I' >*4*(&;;5' <*' &77*&(3' ./' 2&=*' 2&1' &' ,!&6*4' &= 2' "$ ' &41' &' ,*&3.' .2*' = ' /4' 0>' @U.2' ,' *!..&4.' (*7(*3*4.&.!/43' /,' .2*' /1' .2*' ,!4*3.' !3' &' -/;/33&;' ,!>0(*' !4' .2*' ; 0=(*' (*7(*3*4.!4>' 2!6' !4' &'(*-;!4!4>' 7/3F.0(*' &3' &'=!-./(' <(/A4*1' A!.2' <&5' 2/;1!4>' !4' /4*' 2&41' &' (011*(' &41' !4' .2*' /.2*(' &' $@" ' A!.2' .2*' 32*"A/;,' &41' /60;03' &41' *603' <5' 2!3' 3!1*

!<!&' ' >)

!<0;;03' # ' ' /6&4' *;*>!&-' 7/*.' </6' &</0.' VV' ' /,' &' A*&;.25' &41' &4-!*4.' *:0*3.(!&4' ,&6!;5' A2!-2' 2&1' ;/3.' &' -/4F3!1*(&<;*' 7&(./,' !.3' 7(/7*(.5' !4' .2*' !=!;' &(3' /A*=*(' 2*' 3.!;;' /A4*1' &4' *3.&.*' &.' *106' <*.A**4' ;<0(' &41' (3*4*3.' &41' A&3' &<;*' ./' ;*&1' &' - 6,/(.&<;*' ;!,*' *' /<.&!4*1'.2*' ,&=/0(' /,' *33&;&' /(=;403' A2/6' 2*' &--/67&4!*1' /4' 2!3' :0!.&4!&4' -&67&!>4' !4' $' /' *3 &;&3' !4=!.&.!/4' ./' &--/67&45' 2!6' ./' 3!&' 2*' &.' ,!(3.' 1*-;!4*1' <*!4>' -&7.!=&.*1' <5';/=*' 5 = ' &' ,(**1"A/6&4' A2/3*' 7(/7*(' 4&6*' A&3' ;&4!&' ,.*(A&(13' A2*4' 2*' 2&1' 1*.*(F6!4*1'./' 6&D*' .2*' K/0(4*5' 2*' ,*;;' !;;' &41' A&3' -/67*;;*1'./'(*6&!4'<*2!41'&.' /(-',(&' *' (*.0(4*1'./' /6*' &41' .2*(*' (*-*!=*1' .2*' 3&1'.!1!4>3'.2&.' *;!&' A&3',&!.2;*33'./' 2!6' &41' 2&1' >!=*4' 2*(' &,,*-.!/43' ./' &(!-2' 30!./(' 2*' 7/*63' A2!-2' (*,*(' ./' 2!3' (*;&.!/43' A!.2' *;!&' &(*'*-/4.&!4*1' !4' .2*' ,!(3.' </D' /,' 2!3' *;*>!*3' 2*' 3*-/41' </D' 2&3' &3' !.3' 30<K*-.' 2!3' 6!3.(*>' A2/' ;!D*A!3*' *6<!..*(*1' 2!3' ;/' *' <5' 2*(' ,&!.2;*334*33' --/(1!4>' ./' &4' *7!>(&6' <5' &' -/4.*67/(&(5' 7/*.' 2*' 1!*1' 3//4' &,.*(' *(>!;' !4' .2*' 5*&(' $T' ' (' /(' *&(;5' !4' $R

/0(' </!D3' /,' *;*>!*3' 2&=*' -/6*' &/A4' ./' 03' 041*(' 2!3' 4&6*' <0.' "/,' .2*3*' /4;5' .2*' ,!(3.' .A/' <&4' <*' &33!>4*1' ./' 2!6' A!.2' -6.&!0.5' 2*' A2/;*' /,' .2*' .2!(1' </!D' !3' .2*' A/(D' /,' & ,**<;*' !6!.&./(' A2/' (*7(*3*4.3' 2!63*;,' &3' -&;;*1' 5>1&603' &41' &3' </(4' !4' .2*' 5*&(' C ' .' .(*&.3' /,' .2*' ;/=*"7&33&>*3' <*.A**4' .2*' 7/*.' .0!1' 2!3' 6!3.(*33' > ' ,' .2*' ,/0(.**4' 7/*63' /,' .2*' ,/0(.2' </!D' .2*' ,!(3.' &' 7&4*>5(!-' !4' @$$' 2*0&6*.*(3' /4' *33&;&' -/67/3*1' 10(!4>' *33&;&3' -/430;32!7'!4' $' !3' 3/' /(' &' 7(/10-.!/4' .2&.' !.' -&44/.' <*' &33!>4*1' ./' !<0;;03' *37*-!&;;5' &3' 2*' &;(*&15' *4K/5*1' .2*',0;;',&=/0(' /,' *33&;&' A2!-2' !3' 3/;!-!.*1' <5' .2*' &0.2/(' /,' .2*' 7/*6' /(*/=*(' 7/*63' R"$@' 32/(.';/=*";*..*(3' /,' &' 6&!1*4' ./' &' ;/=*(' 4&6*1' *(!4.203' 7/33!<;5' !<*(!03',(!*41' /6 .03'&(*',(/6'.2*' 7*4' /,' &' 7/*.*33' 0;7!-!&*7(/<&<;5' .2*' >(&41F1&0>2.*(' /,' .2*' ,&6/03' K0(!3.' B(03' 0;7!-;03' 2*(*' !3' 4/' >(/041' ,/(' 4/.' &..(!<0.!4>.2*'(*6&!4!4>'7/*63'./' !<0;;03' 2*' 370(!/03' A/(D3' /A*' .4*!(' 7(*3*(=&.!/4' &6/4>' .2/3*' /,' !<0;;03' ./' .2*' ,&-.' .2&.' .2*5' &(*' .2*' 7(/10-.!/4' /,' .2*' -!(-;*' /,' *33&;&*' &41' A*(*' 70<;!32*1' A!.2' .2*' >*40!4*' A/(D3' &3' 7&.' /,' .2*' ;!.*(&(5' (*F6&!43' *!.2*(' /,' *33&;&' /(' /,' !<0;;03' A2/' 2!63*;,' &.' .2*' =*(5' 6/3.' 70<;!32*1' .2*' ,!(3.' </!D' /4;5' 10(!4>' 2!3' ;!,*.!6*

6/4>' .2*' &4-!*4.3' !<0;;03' A&3' /4F3!1*(*1' .2*' ,!(3.' 6&3.*(' /,' *;*>!&-' -/67/3!F./!4' 2*' .A/' .2*6*3' /,' 2!3' 7/*.(5' &(*' ;/=*' &41' -/04.(5';!,*' !.2!4' .2!3' 4&((/A' (&4>*' .2*' 7/*.' 6/=*3' A!.2' -/43!1*(&<;*' >(&-*' &41' .(0.2,0;4*33' /,' ,**;!4>' *07(*33F!4>' 2!3' 2/6*;5' .2/0>2.3' !4' -/((*37/41!4>;5' 2/6*;5' &41' 4&.0(&;' ;&4>0&>*' A!.2/0.' &45' /,' .2*' /<3-0(*' *(01!.!/4' -2&(&-.*(!3.!-' /,' (/7*(.!03' <0.' &;3/' A!.2/0.' .2&.' 7/*.3' =*(3&.!;!.5' &41' &(.!3.!-' 3D!;;

!6&*43' 8$9' ' (**D' ((' &4' &12*(*4.' /,' .2*' 5.2&>/(*&4' 3-2/;*' .2*' &;;*>*1' &0.2/(' /,' A/(D3' /4' .2*' 4&.0(*' /,' .2*' A/(;1' &41' .2*' 3/0;' /,' .2*' 07!=*(3*' & ' 5

8@9' ' (**D' ("' </6' !4' V@' ' (' &.' &0(6 4;06' !4' !X&;5' A2*(*' 2!3',&.2*(' 41(6V-203' *3.&<;!32*1' !4' VR' .2*' (*64&4.' /,' .2*' &O!&43' &,.*(' .2*' 1*3.(0-.!/4' /,' .2*!(' /A4' <5' ! 453!03' !4' CN ' *' A&3' !43.(0-.*1' <5' 4; 3-03' /,' !;*.03' /4*' /,' .2*' 707!;3' /,' 3 -(.*3' 3' &' 6*6<*(' /,' /4*' /,' .2*' 4/ *3.' &41' A*&;.2!*3.' ,&6!;!*3' /,' !-!;5' 2*' A&3' <&4!32*1' <5' .2*' .5(&4.' >J.2?-;*3' !4' $N' &41' A*4.' ./' .2*43' A2*(*' 2*' ;!=*1' ,/(' ,!,.5' 5*&(3' /--07!*1' !4' .2*' -/67/3!.!/4' /,

2!3./(5 &.* !4 ;!,* 2* (*.0(4*1 ./ d2!3 2/6*' &41 1!*1 .2*(* !4 @V? (&. .2* &>* /,' 4!4*.5"3!0 /-/67/3*1&' :' :',(/6 .2* *&(;!*3. .!6*3 1/A4 ./ @?C % !4 3!0.5"*!>2. </!D3 &41 & A/(D "' ($ 1" ', : (/4;5,(&>" 4&*4.3 /,' .2*3* -/67/3!.!/43 2&=* -/6* 1/A4 ./ 03 * 2!63*;, *07*(!*4-*1 !4 2*&(;5 *=*(5 :0&(.*(.2* 3&6* 2/3.!;* -(.!" ! 6 A2!-2 2!3 7(*1*-*33/(3 A/(D3(*-*!=*1 &. 2!3 /A4 2&4B *37*-!&;;5,(/6 /;5<!03 8O $"$? g A2/ 7(/4/04-*3 2!6 A2/;;5 !4F -&7&-!.&.*1,/(A(!.!4> 2!3./(5 /4 &--/04. /,' 2!3 ;&-D /,-(!.!-&;&-06*4 2!3 6&;!>4!.5 2!3 7&(.!&;!.5 &41 2!3 .*41*4-5 ./ 307*(F 3.!.!/4 * A&3 .2* ,!(3. &6/4> (**D &0.2/(3 A2/(*>0;&(;5 &1/7.*1.2*(*-D/4!4> <5 ;567!&13 &3 .2* <&3!3 /, &;-2(/4/ ;/>!-&,3.&.*6*4.3

8 g (7(/<&<;5 </(4 I -/67!;*1 & ;&./4!-' 1!-.!/4&(5 & 7&(./, A2!-2 !3 3.!;,*0.&4.

6&4.2*3 (**D 7&!4.*(,(/6 .2* !3;&41 /, 5.2403 ,;/0(!32*1 &</0. CNN - " -*;*<(&.*1 <5 .2* &4-!*4.3 ,/(2!3 >*4!03 4/;*33 .2&4 ,/(2!3 &(. 2* 6/3. &16!(*1 /, 2!3 A/(D3 A&3 2!3 7&!4.!4>/, .2* *07(*33!/4 /, .2* 1!,,*(*4. 1*>(**3 /, 356F 7&.2*.!- >(!*, &41 6/0(4!4> A&3 <(/0>2. /0. !4 & 6&3.*(;5 6&44*(2* ,&-* /, >&6*64/4 A&3 2!11*4 !4 & 6&4.;*" & 3.(!D!4> A&5 /, (*7(*3*4.!4> .2* ,&.2*(3 04./;1 &4>0!32 f !-*(/ (&./(UC" ;!45 > OOO=U " S0!4.!;!&4 !!! $ `' $@" &;*(!03 &0!603 =!!!' $$ `' ?' 2* 3&6* 1*=!-* !3 &1/7.*1 !4 .2* 60(&;7&!4.!4>,(/6 /67*!!'(*7(/10-*1 041*(A W

!6*6& 8 (H =&;0&.!/4 I H &33*33F 6*4.!9 8$9 2*=&;0* &.A2!-2 &4 .2*4!&4 -!.!Q*43 7(/7*(.5 A&3 (&.*1 ,/(.&0&.!/4 $; " & $ 5 .6/ &41

8@9 4 ;*>&;' ;&4>0&>* & ,!4* 7 '3 & 3) ((%

!6/-(&-5 8 (/) >/=*(46*4. &--/(1!4> ./ 7(/7*(.5".&0 /(=&;0&.!/4 /, 7(/7*(.59 2* 4&6* >!=*4 &6/4> .2* (**D3 ./ .2&. ,/(6 /, >/=*(46*4. !4 A2!-2 A2!;* .2* -!.!Q*43 A*(* *:0&; !4 /.2*((*37*-.3 .2*!(32&(* !4 .2* >/=*(4F 6*4. A&3 (*>0;&.*1 <5 &-*(.&!4 >(&1&./4 -/((*37/41!4> ./ .2* &6/04. /, .2*!(7(/F 7*(.5 203 .2/3* A2/3* 7(/7*(.5*4.&!;*1 .2* >(*&.*(*07*41!.0(* !4 70<;!-3*(=!-*3 7/33*33*1 7(/7/(.!/4&.*;5>(*&.*(7(!=!;*>*3 2* " "' " "'& A&3,/041*1 /4 .2!3 7(!4-!7;*

!61-(/4 (**D ;5(!-7/*. /, ;&;B" 303 !4 2/1*3 2/,;/4(!32*1&</0.CRN 5 * A&3 &(*4/A4*1 &.2;*.* &41 &,(!*41 /, 2*6!3. -;*3 037*-.*1/, .(*&3/4&<;* !4.(!>0*3 A!.2 .2* *(3!&43 2* A&3 <&4F !32*1 ,(/6 2!3 2/6*" &41 4/. /<.&!4!4> 2!3 (*-&;; <5 &!1 /, 2*6!3./-;*3 2* &.F .&-D*1 2!6 &3 A*;;&3 2!3 (!!(&; !6/4!1*3 .2*,(!*41/, 2*6!3. -;*3 A!.2 3-0((!;/03 ;&67//43 !4 .2*,/(6/, B/;!&4 &41 /(!&4 ;5(!-3 *&;3/ -/67/3*1 -,,;Q& ,2!3 A(!.!4>3 /4;5 &,*A ,(&>6*4.3 2&=* -/6* 1/A4 ./ 03 A2!-2 32/A 2!6 ./ <* &6&4 /, &<!;!.5 &41 /, =*2*6*4.7&33!/4 f ;0F .&(-2 +(@$g

!6!6J-243 ,5Q&4.!06 2* ;&3. (**D(&(.!3./,4/.* 2* 7(/<&<;5,;/0(!32*1 !4 .2* (1-*4.4 5 % 6/4>3./ 2!3 6/3. -*;*<(&.*1 7!-.0(*3A*(* 2!3 8 - (" &41 2!3 804,!4!32*1g 2* ;&..*(A&3 (*7(*3*4.*1 !4 .2* &-./, 1*;!<*(&.!4> A2*.2*(32* !3 ./ 3;&5 2*(-2!;1(*4 /(.2*3* 7&!4.!4>3 &*3&(&,.*(A&(13 7&!1 .2*306/,*!>2.**4 .&;*4.3 ,2!3 A* 2&=* 3*=*(&; /7!*3 &3 !4 .A/, /,.2* 60(&;7&!4.!4>3 /, *(-0F ;&4*06 &41 /67*!!f &06*!3.*(3 5 " F / TCR &41 $VV ;!45 > OOO=``@? $? $CV" =!!$@?g

!6/4 (**D 72!;/3/72*(&41 7/*. /, 2;!03 A2/,!/0(!32*1&</0.@VN * *-/67/3*1 .2(**/D3 /, & !4 A2!-2 !4 .2*,/(6/,&7&(/15/,.2* 7!-7/*.(5 /, /6*(2* A!..!;5 (!1!-0;*1 .2* 1/>6&.!- 72!;/3/72*(3 ,(/6 .2* -*7.!-7/!4 /, =!*A 3 .2* -2!*, (*7(*3*4.&F .!=* /,.2!3 3.5;* /, A(!.!4>2* A&3 3.5;*1 3!67;5 .2* 1 (*'/4;5 7/33*33 ,(B6*4.3 /,2!3 A/(D3

K61.2 43 (**D 1!.25(&6<!-7/*. & * & ' ;(*3;!;3 ' !(/& '+ 2*;*&(4*1,(**1" 6&4 &41,(!*41/, .2I4 !-*(/ * A(/.* .2* ;!,* /, 3 6&3.*(A2/6 <* ;/4> 30(=!=*1 *1!.*1 2!3 37**-2*3 &41 ;*..*(3 &41 -/;;*-.*1 2!3 A!..5 3&5!4>3 *3!1*3 .2!3 2* -/67/3*1 >(&66&.!-&; &41 *4-5-;/73*1!-&; A/(D3 * !3 *37*-!&;;5 ,&6/03 &3 .2* !4=*4./(/, /6&4 32/(.F 2&41 A(!.!4>' &41 2!3 4&6* !3 &33!>4*1 ./ &;&(>* -/;;*-.!/4/,3.*4/>(&72!-&; 356</;3 &" + " " * ;!=*1 ./ .2* &>* /,' $NN

!(/-!4!06 8H &((*-(0!.3 .*(6 /,' 3*(F =!-*I " ,(/6.!(/ &H (*-(0!.I 9 2* /6&4 .*(6 ,/(.2* !4.*(=&; <*.A**4 .2* &3F 3067.!/4 /, .2* 1 & .2* $?.2 /($U.2 5*&(g A2!-2 6&(D*1 .2* <*>!44!4> /, !41*7*41*4-* &41 /, ;!&<!;!.5 ./ -/6"

70;3/(5 6!;!.&(5 3*(=!-* &&1 .2* *4.(&4-* /4 & 6!;!.&(5 -&(**(/(/.,!-!&; &-.!=!.5 !4 >*4*(&; 41*(.2* *70<;!- .2!3 .!6* A&3 ,!0*1 &. & 5*&(. A&3 ;//D*1 07/4 &3 .2* ;&3. 3.&>* /, *10-&.!/4 &41 !4 .2!3 & 5/0.2 :0&;!,!*1 2!63*;, *!.2*(!4 .2* &(65 ,/(3*(=!-* !4 A&(/(!4 .2* /(06 ,/(& 7/;!.!-&;:!,*

 4 .2* ;&..*(!43.&4-* .2* 5/04> 6&4 A&3 2&41*1 /=*(./ .2* -&(* /, & 6&4 /, 7(/=*1 *07*(!*4-* !4 70<;!- &,,&!(3 A2/6 2* &..*41*1 !4 .2* /(06 &41 !4 .2* ;&A -/0(.3 4 .2* ,/(6*(-&3* 2* ,/;;/A*1 !4 .2* .(&!4 & (/ & >*4*(&; A2*(* A!.2/0. 7*(,/(6!4> .2* 3*(=!-* /, & -/6 6/4 3/;1!*(2* ,!..*1 2!63*;, ,/(.2* 7/3! .!/4 /, &4 /,,!-*(

 !3!721 * 4* /, .2* (**D 0(!*3 # *

 !.&4 4/.2*(4&6* /, .2* 304">/1 # /

 ;.&43 2* -2!;1(*4 /, (403 &41 &*&3!0 3/43 &41 3!0 1&0>2.*(3 <" &41 + (: : "' &41 2-!& 87&(*4.3 /, *;;13 ;*4 139 $ &41 , (87&(*4.3 /, ./ &41 3.1(;&9 $ &41 (87&(*4.3 /, .2* ;567!&4 1*!.!*39 (8,&.2*(<5n 0(B<!& /, 3.(3*03 &;;&3 W &41 *(3*39 8,&.2*(/, .;&3

 4/*.!03 (161.2*03 &41 7!6*.2*03 % <5 .2* -*&4"4567 2 ;B6*4*9 +(86/.2*(/, .2* /0(3 &41 &.*39 &41 " :"86/.2*(/, .2* 03*39 !D* .2* 7&(*4.3 .2* -2!;1(*4 &41 >(&41-2!;1(*4 <*&(.2* 4&6* /, !.&4 4-!.*1 ./ (*<*; ;!/4 <5 .2*!(6/.2*(*& .2*5 /=*(.2(*A 1 (&403 # :&41 *3.&<;!32*1 &3 3/=*(*!>4 .2*!(5/04>*3. </(./.2*((/403 * A&3 1*.2(/4*1 !4 .0(4 <5 2!3 3/4 L*03 A2*(* 07/4 .2* <*3. /, .2* !.&43 &41 .2* 6&K/(!.5 /, .2*!(406<*(1*-;&(*1 ,/(.2* 4*A (0;*(&41041*(.2* 4*A /(1*((*.&!4*1 .2*!(/;1 7/3!.!/43 %A!.2 .2* &11!.!/4 /, 4*A 7(*(/>&.!=*3 2* (*3. 4&6*;5 .2* ,&6!;5 /, ;&7*.03 -&((!*1 /4 ,(/6 /04. .2(53 &;/4> &41 ,!*(-* 3.(0>>;* A!.2 .2* ;567!&4 >/13 A2/ ,/0>2. ,(/6 /04. ;56703 !4&;;5 <5 2*;7 /, .2*!(/A4 D!41(*1 .2* *-J./4-2 (3 &41 .2* 6:2 -;/7 3 A2/6 <5 *(& 3 -/043*; L*03 2&1 3*. ,(** ,(/6 .2*!(7(!3/4 .2*5 A*(* -/4 XK0*(*1 &41 20(;*1 1/A4 !4./ &(.&(03 A2*(* .2* *-&./4-2*!(*3 A*(* 3*. ./ >0&(1 G .2*6 ;&.*(;*>*41 (*7(*3*4.3 .2* !.&43 &3 (*-/4-!;*1 A!.2 L*43 &41 (*;*&3*1 ,(/6 G &(.&(03 &41 &!B!>43 .2*6 &7;&-* A!.2 (/403 !4 .2* 3;&413 /, .2* ;*3. !.21403 /4 /, &V6?1/4 /, (/5 <(/.2*(/, (!&6 -&((!*1 /,, <5 /3 /4 &--/04. /, 2!3 <*&0.5 2* /<.&!4*1 ,/(2!6 ,(/6 L*03 .2* >!,. /, !66/(.&;!.5 <0. ,/(>/. &. .2* 3&6* .!6* ./ &3D ,/(*.*(4&; 5/0.2 2*4 2* &,.*(A&(13 <*-&6* -A4 7;*.*;5 A(!4D;*1 &41 <*4. <5 &>* &41 A&3 7/A*(;*33 ./ 6/=* GA!.2/0. &33!3.&4-* &41 6*(*;5 -2!(7*1 ;!D* &-!-&1& 32* 320. 2!6 07 !4 &3/;!.&(5 -2&6<*(--/(1!4> ./ &4/.2*(=*(3!/4 /3 -2&4>*1 2!6 !4./ &-!-&1& !3 3/43 A*(* 6&.2!V4 &41 *64/4&1

 !.;*3 4* /, .2* .2(** &4-!*4. 7&.(!-!&4 .(!<*3 &. ^/6* & $ &

 ;.;4;43 /6&4 -/6!- 7/*. .2* *&(;!*3. (*7(*3*4.&.!=* /, .2* 1 & " & * *, ;/0(!32*1 &</0. $VN & A!4> ./ 2!3 3D!;; !4 7/(.(&5!4> -2&(&-.*(2* A&3 (&4D*1 4*0. ./ *(*4-* , <!3 -/6*1!*3 A* /4;5 7/33*33 ,!,.**4 .!.;*3 &41 .2(** ,(&>6*4.3 /, &7/70;&(-2&(&-.*(

 !.&43 /4/, 3*& &>!&4. !4 0</*& A2/ /,,*(*1 G=!/;*4-* ./ `.? &&1 !4 -/4F 3*:0*4-* A&3 D!;;*1 <5 .2* &((/A3 /, 2*(-2!;1(*4 7/;;/ &41 (.*6!3 * 1 7*4&;.5 /, .2!3 /0.(&>* !4 .2* ;/A*(A/(;1 A2*(* 2* ;&5 3.(*.-2*1 /=*(4!4* &-(*3 /, >(/041 A2!;* .A/ =0;.0(*3 7*(7*.0&;;5 >4&A*1 &. 2!3 ;!=*(8.2* ;!=*(<*!4> 307F 7/3*1 ./ <* .2* 3*&. /, .2* 7&33!/439

 1>& 2*1!3.!4-.!=* >&(</, .2* /6&4 -!.!Q*4 A2*4 &77*&(!4> !4 70<;!-& -0.9 .3 03* A&3 ,/(<!11*4 ./ *0!;*3 &41 ./ ,/(*!>4*(3 "!. A&3 !41!37*43&<;* /4 &;; /,,!-!&; /--&3!/43 *=*4 !4 !67*(!&; .!6*3 A2*4 6/(* -/4=*4!*4. >&(6*4.3 2&1 <**4 &1/7.*1 ,/(/1!K4&(5 03* ./-/43!3.*1 /, & A2!. A//;;*4 -;/.2 /, *6!-!(-0;&(-0. &</0. ,!=*5&(13 ;/4><5 ,/0(A!1* & -*(.&!4 7/(.!/4 /, A2!-2 A&3 7(*33*1 <5 .2* ,0;;*(!4./ ;/4> 4&((/A 7;&!.3 2!3 -;/.2 A&3 1/0<;*1 ;*4>.2A&53 4/. 1/A4 .2* -*4.(* <0.3/ .2&. /4* ,/;1 A&3 1**7*(.2&4 .2* /.2*(G . A&3 4*0. .2(/A4 /=*(.2* ;*,. 32/0;1*(!4 30-2 & 6&44*(.2&. .2* *41 !4 ,(/4 (*&-2*1 ./ .2* >(/041 &41 .2* 7&(. <*2!41 A&3 &</0. .A!-* & 6&4 3 2*!>2. !4 ;*4>.2 2!3 *41 A&3 .2*4 <(/0>2. (/041 041*(.2* (!>2. &(6 &41 &>&!4 .2(/A4 /=*(.2* ;*,. 32/0;1*(3/ &3 ./ -/=*(.2* A2/ /, .2* (!>2. 3!1* ",(/6 .2* &(6"7!. ./ .2* -&;, 2* <(/&1 ,/;13 !4 A2!-2 !. 204> /=*(A*(* .203 >&.2*(*1 ./>*.2*(!4 .2* ;*,. 32/0;1*(2* 7&(. A2!-2 -(/33*1 .2* <(*&3. 1!&>/4&;;5 A&3 D4/A4 &3 .2* " /(</3/6 . A&3 1**7 *4/0>2 ./ 3*(=* &3 &7/-D*. ,(.2* (*-*7.!/4 /, 36&;; &(.!-;*3 4 *&(;!*(.!6*3 .2* /6&43 A/(* .2* ,/7&*=*4 !4 A&(,&(* &;.2/0>2 /4* /, -/4"

3!1*(&<;5 ;*33 A!1.2 . A&3 A/(4 /4 34-2 /--&3!/43 !4 & 7*-0;!&(6/1* -&;;*1 .2* " 6 " 8/(>!(1!4>!4 .2* &<!&4 6&44*(&,.*(.2* ./A4 &<!!9 4 .!!!3 .2* *41 A2!-2 !4 .2* /.2*(6/1* A&3 .2(/A4 /=*(.2* ;*,. 32/0;1*(A&3 1(&A4 .!>2.;5 (/041 .2* </15 3/ .2&.!4 !.3*;, !. ,/(6*1 &>!(1;* ;*&=!4></.2 &(63 ,(**&41

<;&-D 1 ' A&3 /4;5 A/(4 <5 .2*;/A*(-;&33*3 /(!4 .!6*/, 6/0(4!4>/(<5 &--03*1 7*(3/43 70(7;* 3.(!7* A/=*4 !4 .2* >&(6*4. A&3 .2* 1!3.!4-.!=* 6&(D /, .2* -0(0;* 6&>!3.(&.*3 &41 -*43/(3 /, .2* .&.* 7(!*3.3 8<0. /4;5 A2*4 7*(, /(6!4> .2*!(,04-.!/439 &41 &,.*(A&(13 /, .2* *67*(/(3 2!3 A2!-2 A&3 -&;;*1 .2* 1 - A&3 &;3/ A/(4 <5 </53 04.!; .2*5 &..&!4*1 6&42//1 &41 <5 >!(;3 07.!; 6&((!&>* 2* 1 A&3 &((/<* &1/(4*1 A!.2 >/;1*4 3.&(3 !. A&3 A/(4 <5 &>*4*(&; /4 2!3 .(!0672 <5 .2* 6&>!3.(&.* A2/ A&3 >!=!4> 70<;!- >&6*3 !4 !67*(!&; .!6*3 <5 -/430;3 /4 *4.*(!4> /,,!-* &41 <5 .2* *67*(/(/4 ,*3.&; /--&3!/43 4 .2* 1 $ " ") 2* ,//.">*&(&77(/7(!&.* ./ .2* 1 A&3 .2* #

1>&.& f 2* >*4*(&; .*(6 ,/(&7;&5 A!.2 &4 .&;!&4 7;/. &41 30((/041!4>3 !4F -;01!4> - 8.(&>*1!*39 &41 2 " 8-/6*1!*39 !/6*1*3 7 CRT ^*!; A2/ 6&D*3 !. -;*&(.2&. .2* .*(6 : !3 4/. -/4,!4*1 ./ -/6*15 &41 .2&. /(&-* 5 , @RR !3 A(/4> !4 1!3.!4>0!32!4> 1 ,(/6 - &3 -/6*15 ,(/6 .(&>*15 g # " & * I " !] g f g /!;*. / - 0 &41 ! & /;; 4/ /6&4 3!*>*"*4>!4* # $

/(-2"(&-* 8 (; " 2* ./(-2"(&-* A&3 &(-/4.*3. 2*;1 &. 4!>2. *37*-!&;;5&. .2*43 &. .2* &4&.2*43*& &41 .2* ,*3.!=&;3 /, *72&*3.03 (/6*.2*03 &4 &41 .2* 2(&-!&4 6//4">/,!1*33 -&;;*1 *41!3 f ;&./ 7 KIO W 4 .2!3 -/4F .*3. 5/04> 6*4 (&4 A!.2 ./(-2*3 !4 .2*!(2&413 ,(/6 .2* &;.&(/, (/6*.2*03 !4 .2* -&1*6!&8A2*(* .2* ./(-2*3 A*(*;!>2.*19 ./ .2* -!.5 &41 A2/*=*((*&-2*1 .2* >/&; A!.2 2!3 ./(-2 &;!>2. A&3 .2* A!44*(.2*(

7(*=/4.!4> .2* >&(6*4. ,(/6 ,&;;!4> /;; 2!3 >&(< A&3 30<3*:0*4.;5 (*.&!4*1 /4;5 ,/(*(.&!4 -*(*6/4!&; (!.*3 &3 &. .2* ,/041F !4> /, ./A43 &. .2* T 10(!4> !4-&4.&.!/43 &. .2* /7*4!4> /, .2* .*67;* /, &403 &41 &. 3&-(!,!-!&; /<3*(=&4-*3 /, 1!=*(3* D!413 ,.*(.2* 1 2&1 <**4 !4.(/10-*1 &3 &6!;!.&(5 >&(6*4. .2* 1 3*(=*1 &3 .2* *0-;03!=* >&(< &41 356</; /, 7*&-* /6*4 &;3/ !4 /;1*4 .!6*3 03*1 ./ A*&(.2* 1 ,&.*(A&(13 .2!3 A&3 /4;5 .2* -&3* A!.2 7(/3.!.0.*3 &41 1!3>(&-*1 A!=*3 A*(* ,/(<!11*4 ./ A*&(.2* .2* 6&.(/43 1(*33 /, 2/4/0(2* -/;/0(/, .2* 1 &3 A/(4 <5 6*4 # 1 A&3 A2!.*W & 1&(D"-/;/0(*1 1 8</(/A4 /(

5/04> 6*4 A!.2/0. ./(-2*3 (&4 &,.*(.2* ./(-2"<*&(*(3 &41 .2* ;&..*(!, /=*(.&D*4 2&1 ./ 2&41 /=*(.2*!(./(-2*3 ./ .2* ,/(6*(1/ .2!3 A!.2/0. ;*..!4> .2* ./(-2*3

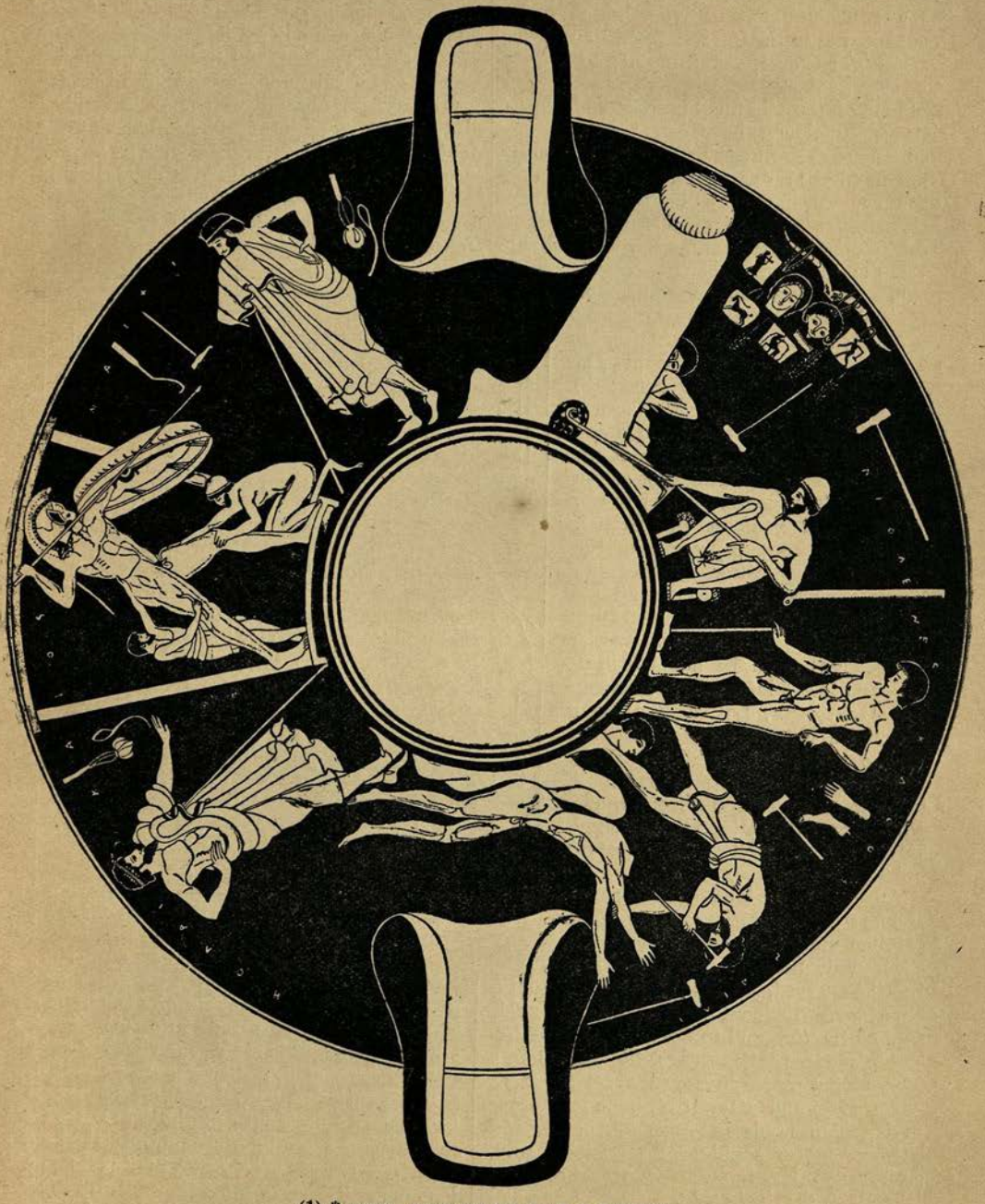
8 !;=*(-/!4 , &(*4.06 054*3 2/!31* ( ] 9

3*0& (*7(*3*4.3 & 3.&..&-D*1 <5 & 1/> # O!O @@?9 2* -07 /, *3./(!3 7!*(-*1 A!.2 (!=*.3 /,>/;1 2&3,/0(2&41;*3 A!.2 .A />/;1*4 1/=*3 ./ *&-2 2&41;* &41 .A/ 3077/(.3 (044!4> ,(/ 6 .2* <&3* /, .2* -07 ./ .2* ;/A*(7&(. /, .2* </A; 1*F 3!>4*1 ./ 3.(*4>.2*4 .2* -*4.(&, 3.*6 &'' O!? @ A!.2 (*&, 3 4/.*9 2* 3.(0-F .0(* /, .2!3 3!4>0;&(-07 A&3 .2* .2*6 * /, ;*&(4*1 1!3:0!3!.!/43 !4 &4-!*4. .!6*3 8 .2*43*03 CRT9 !. 2&3 4/A <**4 6&1* !4.*;;!>!<;* <5 .2* *&(;5 -073 1!3-/=*(*1 &. 5- 4&* &41 &*(*8 *;<!>5 (9 "5 " 7 @U@9 4 .2* -07 ,(/6 5-*4&* 8 -2;!*F 6&443 : " ,!> C?' -20-22&(1. "?9- " ,!>@CN9 A* 3** .2* 3077/(.3 -/4.!40*1 !4./ .2* 2&41;*3 &</=* .2*6 &41 *=*4 .A/ 1/=*3 &3 /(4&F 6*4.3 /4 .2* ./7 /, .2* 2&41;*3 ;3*F A2*(* !4 /6*(& 8!4 ' OO!!! RR? !!! CCN9 &41 & < 8!4 OO!=@UV9 &(* 1*3-(!<*1 &3 H &1/(4*1 A!.2 ,;/A*(3 I A!.2 .2* ;/.03",;/A*(3 &41 (/3*..*3 -2&(&-.*(!3.!-/,&(-2&!-1*-/(&.!/4 8 -2;!*F 6&44 : -" ,!> CC9 2* 32!*;1 /, -2!;;*3 &3 A(/0>2.<5 *72&*3...3 !3 &4 *;&</(&.* A/(D !4-;01!4>40 6*(/03 ,!>0(*3 1!3.(!<0.*1 /=*(3*7&(&.*-/6 7&(.6*4.3 &41 !4;&!1 !4 =&(!/03 D!413 /, 6*.&; 2* 6*.&; ,&-!4> 2&3 &77&(*4.;5 & <(/4Q* >(/041 !4;&!1 A!.2>/;1 3!;=*(&41 : " * &41 .2* 1*3!>43 6&5 <* <*3.(*>&(1*1 &3 (*3*6<;!4> .2* 7*-0;!&(-/6<!4&.!/4 /, >57.!&4 &41 335(!&4 3.5;*3 A2!-2 A&3 !4.(A0-*1 !4./ 0(/7* <5 .2* 2/*4!-!&43 &'' O=!!! CUR"?NU *1 *&," -7 *;<!> $ -2&7 OOO! &41 0((&5 3 6 R -2&6 !!!9

4 .2* /6*(!-&>* .2* &(.!-;*3 !4 6*.&; A2!-2 A*(* 6/3. 2!>2;5 7(!Q*1 &(* >*4*F (&;;5 1*3-(!<*1 &3 !67/(.*1 ,(/6 &<(/&1 203 .2* 3!;=*(>!=*4 &3 & 7(!Q* &. .2* ,04*(&;>&6*3 /, &.(/-;03 !3 .2* A/(D /, !1/4!&4 -(&,.36*4 &' OO!!! UC 9 . !3 .2* D!4>/, .2* !1/4!&43 A2/ 3*413 & ./ *4*;&03 8891 !=?$?" ' OO!!! UC$9 2* .(!7/13 &41 <&3D*./, *;*4 &(* 3&!1 ./ 2&=* <**4 <(/0>2.<5 4 ;&03 ,(/6 >57. 8 1 !=$@?9 2* -0!(&33 &3 A*;; &3 .2* -2&(!/. /, >&6*64/4 &(* 1*3-(!<*1 &3 & 7(*3*4. ,(/6 .2* D!4>/, 57(03 &dd O! @C9

--/(1!4>./ (**D 65.2/;/>5 .2* ,!<(3. <;&-D36!.23 A*(* .2* " 5 & D .2* ,!(3. >/;136!.23 .2* + (" & 2* ;*>*413 &</0. .2* ;&..*(!67;5 .2&. .2* ,/(63 &41 7(/-*33*3 /, .2* &(. A*(* .(&43F 6!..*1 ./ (**-* ,(/6 .2* &3. 2*5 &(* 1*3-(!<*1 &3 1A*;;!4> !4 ,06 !4 (*.* 2/1*3 57(03 /3 5-!& &41 !4 =&(!/03 -!.!*3 /, (**-* *37*-!&;;5 &. !-5 4 A2!-2 &--/(1!4> ./ ;!45 8000=!"C9 A&3 ;/4> .2* 2/6* /, &;;D!413 /, 6&40,&-.0(* !4 6*.&;3 /(D!4> !4 6*.&; A&3 &,.*(F A&(13 60-2 &1=&4-*1 <5 .A/ !67/(.&4. !4=*4.!/43 8$9 .;!&. /, -&3.!4> !4 6/0;13 &..(!<0.*1./ & &6!&4 &(.!3. 2/*-03 3/4 /, 2!;>&3 &41 2!3 3/4 2 1 63 &41 8@9 .2&. /, 3/;1*(!4> &3-(!<*1 ./ ;&0-03 /, 2! 3 8 &03&4!&3 O $? \ $9 A2/ A&3 &;3/ ,&6*1 ,/(2!3 3D!;; !4 2&(1*4!4> &41 3/,.*4F !4>!(/4 8 ;0.&(-2 5 5 CU9 2* ./(*0.!-&(.!3 1*3-(!<*1 <5 ;!45 2&=!4>< **4 ,/041*1 <5 2!1!,.3 8000=VC9 &41 <(/0>2. ./ 7*(,*-.!/4 <5 /;5-;!.03 8V?9 /(.2* ,/(6*(!. !3 30,,!-!*4. ./(*,*(./ .2* -2(53*;*72&4.!4* 3.&.0* /, L*03 &. ;567!& &41 .2&. /, .2*4* !4 .2* &(" .2;4 4 6/4> /.2*(3-0;7./(3 A2/ A*(* &;3/ 6&5 <* 6*4.!/4*1 &;,.6;3 B(V4 072(&4 (*.2 .(&. 4!-03 (!3./4 04!-03 *-2.3*03 3!1/4;03 &3 .;*3 &41 LB4 1/63 2* &(.!3.3 A2/ *0-*;;*1 !4 .2* -2&3!4> /, 3!;=*(& 1 " " &(* *406*(&.*1 <5 ;!45 8000!!! ; "$VU9 A2/ /<3*(=*3 .2&. 4/ /4* 2&1 &..&!4*1 (*4/A4 <5 .2* -2&3!4> /, >/;1 2* ,!(3. 4&6*1 !3 " .2* 6/3. -*;*F <(&.*1/,&;;&41 A!.2 2!6 1 (8 !-*(/ = @ != @ (: (" 1 " " 1 &41 . :& 2 2* ;&3./, .2*3* *0*-0.*1 !4 <(/4Q* ,(/6 .2* 1*3!>43 /, &((2 3!03 .2* <&..;* /, .2* *4.&0(3 &41 &7!.23* A2!-2 &1/(4*1 .2* 32!*;1 /, .2* .2*4* (6 -2,!3 /, 2!1!&3 8 &03&4!&3 ! @R @9 ;!45 3 3*-/41 >(/07 !4-;01*3 $< " &41 4. 7&.*(A2/ !3 7(/<&<;5 6*4.!/4*1 <5 6!3.&D* ,/(5 & "F (1 6 ! $N? $?9 !3 .2!(1>(/07 -/43!3.3 /, " &41 + </.2 /, 5Q!-03 " &41 9 " /, B.;;*4* &41 ;&3.;5 4 .2* 4*0. A* 2&=* , 8!4 .2* .!6* /, /67*59 &;3/, " /, 72*303 A!.2 : (NHV : &41 ,:(,.*(.2*3* 2* &113 .2*(* A&3 &4 &(.!3. 4&6*1 + ,&6/03 &3 & &A/(D*(/,7;&:0*3!4 ;/A (*2*, 2*(*07/4 2* -/4.!40*3 &(.* ;;* !4./ &<*5&4-* &41 /4;5 A/(D3 &3-(!<*1 ./ .2* /;1 6&3.*(3 A*(/, &45 &-/04. *=*4 A2*4 .2* 1*3!>4 2&1 <**4 &;6/3. A/(4 /0. <5 03* 2* &>* /, !6!.&!/43 &41 ,/(>*(!*3 ,/;;/A*1 2* /(D /, &;&6!3 A&3 3D!;,0;;5 -/7!*1 <5 N " 8 ;!45 OOO!=CU9 .2* 3-0;7./(/, .2* -/;/33&; <(/4Q* 3.&.0* /, *(/& CV9

In the above list Pliny is probably following the order of fame rather than that of time. Stratonicus, Ariston, Eunicus, and Posidonius, all belong to Asia, and possibly to the age of the Dĭădŏchi. To the same age may be ascribed Pytheas and two artists remarkable for their skill in the most minute and delicate kinds of work,



(1) * CYLIX, WITH SCENES FROM A FOUNDRY.
(Berlin Museum.)

$) ' /,' &-*1&*6/4' &41' ' /,' .2*43' A2/' !43-(!<*1' &4' *;*>!&-' -/07;*.' !4';*..*(3' /,'>/;1' /4' &'>(&!4' /,' 3*3&6*' &41' -&(=*1' &' 1 ' /,' !=/(5' A2!-2' &' ,;5' -/0;1' -/=*(' A!.2' !.3' A!4>3' 8 ;!&4' =& ' ' !' $U" !-*(/' '!!' $@N" ;!45'=!!' ?V' OOO=!' C 9

/6*' /,' .2*' .*-24!-&;' 7(/-*33*3' /,' A/(DF !4>' !4' 6*.&;' -&4' <*' !;;03.(&.*1' ,(/6' .2*' (*6&!43' /,'&4-!*4.'&(.' 243' /4'&' : -'!4' *(;!4' 8,!>' $9' *02!<!.!4>' 3-*4*3' ,(/6' &' ,/041(5' A*' 2&=*' 8$9' .A/' /(D6*4' /4*' &..*41!4>' ./' .2*' ,!(*' !4'&',0(4&-*' .2*' /.2*('(*3.!4>' /4' &' 2&6 6*('&41'&'</5'<;/A!4>' .2*' <*;;/A3' :' /4' .2*' A&;' 2&4>'.A/' 2&6F 6*(3' &41' &' 3&A' &41' &' 406<*(' /, 6*.&;' 7;&:0*3' A!.2' 2*&13' &41',!>0(*3' !4' (*;!*,' 8@9' &' A/(D6&4' 70..!4>'./F >*.2*(' &' <(/4Q*' 3.&.0*' .2*' 2*&1' /,' A2!-2' ;!*3' &7&(.' /4' .2*'>(/041' 8 9' .A/' A/(D6*4' 3-(&7!4>' .2*' *0-(*F 3-*4-*3' /,;' &' 3.&.0*' /,' &' A&((!/('<5' 6*&43' /,' &' 2//D*1' !43.(06*4.' (*F 3*6<;!4>' &' 3.(!>!;' 2*' ,!(3.' /,' .2*' &</=*' 3-*4*3' !3' -;/3*;5' 3!6!;&(' ./' .2*' 1*3!>4' /4' &' &3*' !4' .2*' (!.!32' 03*06' 8 ' CVR9' (*7(*3*4.!4>' .2*' ,/(>*' /,' *723*3.03' &.' *6413 >&!4' &' 60(&;' 7&!4.!4>',(/6' /6F 7*!!' 32/A3' 03' /4*' /,' .2*' &..*41&4.3' /,' *72&*3.03' 3*&.*1' &.' 2!3' A/(D' !4' 2!3' (!>2.' 2&41' 2*' 2/;13' &' 2&6F 6*('&41'!4'2!3';*,.'&'32&(7'>(&=!4>' .//;' 8 (' *' &.' ' A!.2' A2!-2' 2*' !3' .(&-!4>' .2*' /(4&6*4.' /4' .2*' 2*;6*.' /,' -2!;;*3' 8,!>' @9' --/(1!4>'./' .2*' /(4&6*4.'(*:0!(*1' .//;3' A*(*' 03*1' 1,' 1!,,*(*4.' D!413' A!.2' .2*' *0.(*6!.5' <;04.' (/041' /(' 3:0&(*' &3' A*;;' &3' 704-2*3' ,/(' ' A/(D 6/4>' .2*' *0.&4.' 37*-!6*43' /,' .2*' &(.' &' ,/(*6/3.' 7;&-*' !4' 7/!4.' /,' .!6*' 603.' <*' >!=*4' ./' .2/3*' 1!3F -/=*(*1' <5' -2;!*6&44'&.' !33&(;!D' !4' .2*' (/&1' *37*-!&;;5' .2*' <(&-*;*.3' *&("(!4>3' 1!&1*63' &41' 1!3-3' /,' >/;1' ,!>0(*1'!4' ' &41'!4' -20-22&(1.' (2 ""D' 9- " 8,!>3' R?' VC' V?"VR9' 2/3*' /,' &' 6/(*' &1=&4-*1' .57*' ,/041' &.' 5-*4)' !4'&41'&,.*(' $RUC' !4-;01*' 7;&:0*3' &41' >/;1*4' 3.013' !4' </A;3' &41' 1!&1*63" &;3/' 3*70;-2(&;' 6&3D3' /,' >/;1' !6!.&.!4>' .2*' 206&4' -/04.*4&4-*' &41' 7;&-*1' /4' .2*' ,&-*3' /,' .2*' 1*&1" &(63' &41' /.2*(' /<K*-.3' !4' >/;1' -/77*(' &41' <(/4Q*' 2*' <;&1*' /,' &' 32/(.' .A/"*1>*1' 3A/(1' 8 -2;!*6&44 3' : " ',!>' CC?9' A2*4' 3*.' ,(**' ,(/6' .2*' !4-(03.&.!/43' /4' !.3' 30(,&-* (*=*&;*1' &37!(!.*1' (*7(*3*4.&.!/4' /,' &"204.' A!.2',!=*' &(6*1' 6*4' 70(30!4>' .2(**' ;!/43' 2*' <(/4Q*' >(/041' !3' -/=*(*1' A!.2' 1&(D' *4&6*;' .2*' ;!/43' &41' .2*' ;!6<3' /,' .2*' 204.36*4' &(*' !4;&!1' A!.2' >/;1' /,' 1!,,*(*4.' 20*3' .2*!(' -;/.2!4>' &41' .2*!(' 32!*;13' A!.2' 3!;=*(' &41' /.2*(' 1*.&!;3' A!.2' <;&-D' 8,!>' 9' .!;;' 6/(*!4.*(*3.!4>' !4' (*37*-.' ./' &(.!3.!-' 1*3!>4' &(*' .2*' .A/' 7(*2!3./(!-' >/;1' -073' ,/041' !4' $RRT' = (' .2*' &4-!*4.' 2&(;3' 4*&(' 65-;)' &1/(4*1' A!.2' (*6&(D&<;*' (*;!*,3' (*7(*3*4.!4>' 6*4' 2:4.!4>' A!;1' <0;;3' #9 (' (' $RRT' 7!' U"$N" 6 Q ' ' -' ' $RTN' 77' C@R' &41' C C9

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▫

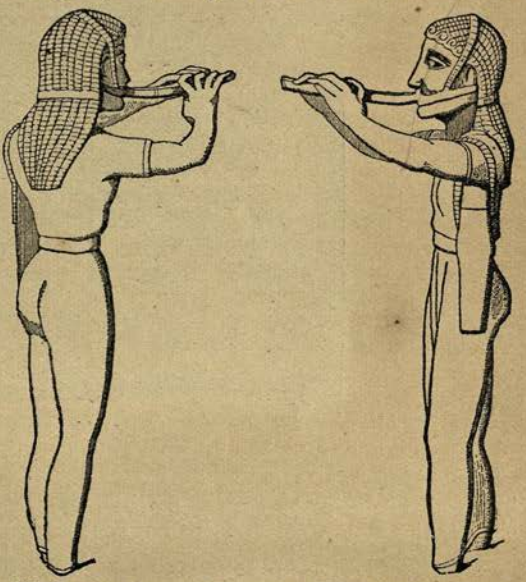
8 0(&;'7/!4.!4>' /67*!!!' *;2!>' &,' $U9

*' 603.' &;3/' 6*4.!/4' .2*' ' "Q ' A2!-2' &</041' !4' 603*063' /,' &4-!*4.' &(.' 2*3*' 6&5' <*' 1!=!1*1' !4./' 8&9' 6 ' "Q ' ' (' : ' 30-2' &3' .2/3*' /,' .2*' ?.2'-*4.6"5' -' 1!3-/=*(*1' &.' /1 4&# 1' .2*' &;0.*"7;&5*(' ,!>' C9' &45' 30-2' <(/4Q*3' &(*' =/.!=*" 1' .2*' &O!&4' 3.&F .0*..*' !4' .2*' *(;!4' 03*06' !43-(!<*1' &3' H 1*1!-&.*1' <5' *!4&> (&3' ./' 7/;;/' .2*' &("1&(.*(I' &41' .2*' 7/;;/' 1*1!-&.*1' <5' ;5-(,..*3' 7(/<&<;5' &4' (>!=*' /,' .2&.' 4&6*' 4/A' !4' .2*' 03*06' &.' .' *.*(3F <0(>' 8?9' "Q ' ' ' : ' 30-2' &3' .2/3*' /,' /67*!!' &41' *(-0;&4*06' 7(B

served in large numbers in the Naples Museum. Earlier Italo-Greek statuettes are rare; *e.g.* the bronze from Tărentum representing a general in the act of addressing his troops (Collignon, *Gr. Arch.*, fig. 134). Among *objects for ornament* we have numerous bronze reliefs in *repoussé* work, which are often perforated with holes for the purpose of attaching them to some other material, whether to strips of leather or articles of furniture. Some of the finest of them are pieces of armour, such as the cheek-guard of a helmet with the combat between Pollux and Lynceus found at Dodona (Collignon, fig. 135), and the *Bronzes of Sīrīs*, two shoulder-pieces of Greek armour found in Southern Italy and now in the British Museum (Second Bronze Room, table-case D; Baumeister's *Denkmäler*, fig. 2204–5). In the same museum is the *Castellani cista*, a cylindrical casket in wood, covered with bands of silver fixed with rivets, and representing lions and winged animals, with lotuses and palmettes of an oriental character (fig. 5). Another group of examples includes the *Greek and Etruscan Mirrors*, with their metal backs or cases ornamented with figures traced by the engraver's burin (fig. 6); and the *cistæ Prænestīnæ* (of the 3rd century B.C.). The finest of these is the *Ficoroni cista*, in the Museo Kircheriano at Rome, with figures in outline representing a scene from the Argonautic expedition and with the archaic inscription, *Novios Plautios med Romai fecid* (Daremberg and Saglio, fig. 1544). There are several others in the First Bronze Room of the British Museum, one with the *Judgment of Paris*, another with *Bellĕrŏphōn and Sthĕnŏbœa*.

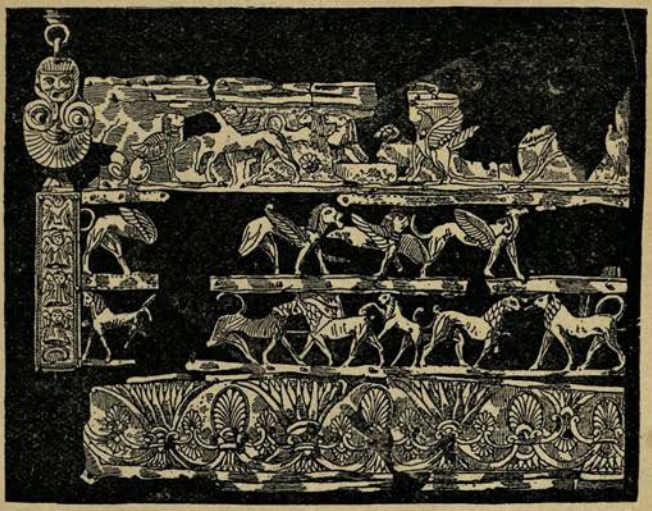
Among *silver vases* of various ages may be mentioned the archaic *pătĕra* of Amăthūs in Cyprus, with concentric bands of

(3) * ENAMELLED SWORD-BLADE FROM MYCENÆ.
(Milchhöfer, *Die Anfänge der Kunst im Griechenland*, p. 145.)



(4) * SMALL BRONZE FIGURE OF FLUTE-PLAYER FROM DODONA.
(Carapanos, pl. 10.)

besieging warriors and winged sphinxes showing the influence of Assyrian and Egyptian art (Cesnola's *Cyprus*, p. 277; Daremberg, fig. 927); the Munich vase, with representations of captive Trojans, in low relief; the magnificent *amphŏra* of the 4th century B.C., found at Nicopol in South Russia in the tomb of a Scythian king with a frieze in high relief running round the upper part, representing Scythians tamcup, found at the ancient Antium, and sometimes supposed to be copied from a Greek original by Zōpўrus (*ib.*, fig. 976); the *pateræ* of Hildesheim (*q.v.*), about the time of Augustus; that of Rennes, of the 3rd century A.D., in the Paris *Cabinet des Antiques* (*ib.* 972); and the vases from Bernay in the same collection. Further, in the British Museum we have a number of embossed and chased caskets, vases, or



(5) * THE CASTELLANI CISTA.
(British Museum.)

ing and tending their horses, while the body of the vase is covered with ornaments

(6) ETRUSCAN MIRROR.
(Berlin Museum.)

in *repoussé*, including large birds and flowers (Daremberg, fig. 975); the Corsini ornaments, found at Rome in 1793, and ascribed to the end of the 5th century A.D. As a late Roman specimen of *ŏpus interrāsĭlĕ*, or open work in which part of the silver is cut away on the same general principle as in fig. 5, we have a *canthărus* of dark red glass mounted in silver gilt, found near Tiflis in 1871, and now in the Museum of the Hermitage, St. Petersburg (fig. 7).

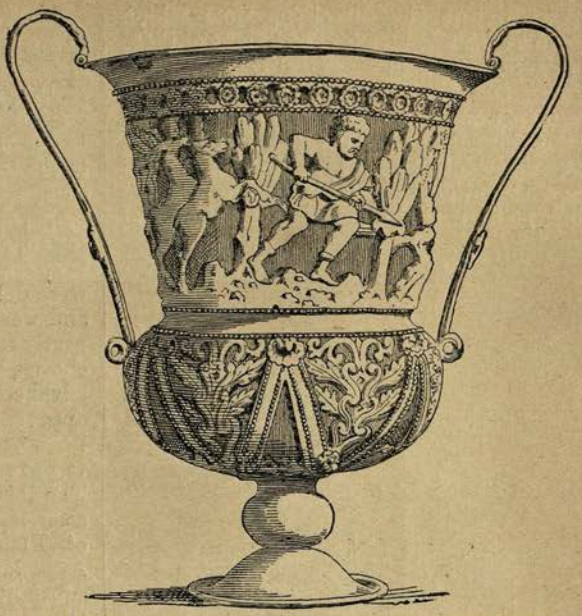
One of the richest collections of *Greek jewellery*, that of the Hermitage Museum, comes from the ancient Pantĭcăpæum (*Kertch*). The Vatican and the Louvre contain remarkable specimens of Etrusco-Greek jewels, mainly found at Vulci and Cære. Modern ingenuity has at present failed to recover the secret of the process of "granulation" employed in many of these jewels, a kind of decoration in which the surface of the gold leaf is covered with minute and almost invisible globules of gold (*see* frontispiece to Martha's *L'Art Etrusque*). The *Antiquarium* of Munich possesses a votive crown of gold, superbly executed, with

sprays of oak-leaves and festoons of flowers with winged figures among them (fig. 8). Lastly, in the British Museum we have specimens of Phœnician art, ascribed to the 8th century B.C., in the gold jewellery from Cămīrus in Rhodes. In the same museum "the Melos necklace, and the sceptre from the tomb at Tarentum, are admirable specimens of that fine combination of filagree and vitreous enamels which characterizes the Greek goldsmith's art in the middle of the 4th century B.C., and the bracelet and ear-rings from Capua, ornamented with lions' heads, are still more precious, as examples of *repoussé* work in its perfection" (Newton's *Essays*, p. 393).

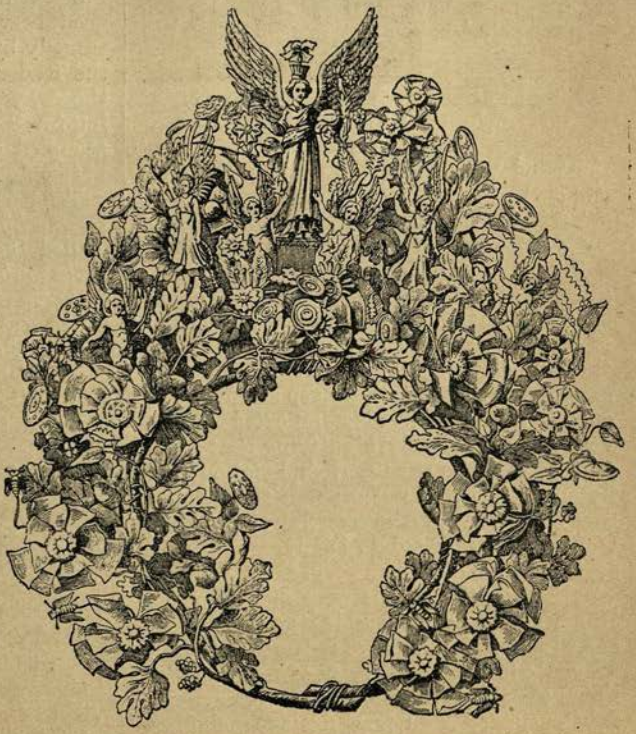
Authorities. Brunn, *Gr. Künstler*, ii 397–412; Marquardt, *Das Privatleben der Römer*, pp. 669–718²; Saglio, article on *Cœlatura* in Daremberg and Saglio's *Dict. des Antiquités;* and Blümner's *Technologie*, vol. iv, pp. 228–413. *Cp.* the short sketch in the last chapter of Collignon's *Manual of Greek Archæology.*] [J. E. S.]

Tormentă. The heavy Roman engines of war. (*See* ARTILLERY.)

Tower of the Winds. An interesting example of the later Attic architecture, still standing in Athens. It was built by Andrŏnīcus Cyrrhestēs [Vitruvius, i 6 § 4] about the middle of the 1st century B.C., and it served at once as the public clock and weather-cock of Athens. It is an octagonal tower of marble, with prominent porches, each supported by two simple Corinthian columns, on the north-east and north-west. On the south it has a kind of turret, to contain the cistern for the water-clock. The eight sides



(7) * GLASS CUP WITH OPEN REPOUSSÉ WORK IN SILVER.
(St. Petersburg, *Hermitage Museum.*)



(8) * GOLDEN CROWN, FROM ARMENTO.
(Munich, *Antiquarium.*)

-/((*37/41 ./ .2* 1!(*-.!/43 ,(/6 A2!-2 .2* *!>2. A!413 <;/A 2* ,!>0(*3 /, .2*3* &(* (*7(*3*4.*1 !4 <*&0.!,0; (*;!*,3 /4 .2* ,(!*Q* &41 <*4*&.2 .2*6 /4 .2* 6&(<;* A&;;3 &(* *4>(&=*1 .2* ;!4*3 /, .2* 3041!&; 2*-0;6!4&.!4>7/!4./, .2*3;/7!4>(//,A&3 /4-* 30(6/04.*1 <5 &<(/4Q* (!./4 7;&-*1 /4 & /(!4.2!&4 -&7!.&; 3/ &3 ./ (*=/;=* &41 7/!4. A!.2 2!3 3.&,, .Y .2* ,!>0(* /,

./ 8/(/ /& " $:

.2* A!41 A2!-2 A&3 <;/A!4> &. .2* .!6* # -0.9

(,.< & 2* 70(7;*"3.(!7*1 -;/&D A/(4 <5 /6&4 1 &41 /6&4 1) #1 !

(&>*15 8 9 (&>*15 !4 @ (/(!F >!4&.*1 !4 .2* ;5(!-1!.25(&6<" ! * !4 .2* 3/4>/, &-2/(03 &. .2* (!.*3 2*;1 !4 2/4/0(/, !/45303 2!3 3/4> !4 &--/(1&4-* A!.2 .2* -0;. /, .2* >/1 *07(*33*1 &. /4* .!6* *00<*(&4.K/5 &. &4/.2*(1**7 3/((/A 2* -0;. /, !/45303 !3 &;3/ !41!-&.*1 <5 .2* =*(5 4&6*/, .(&>*15 3!>4!,5!4> >/&."3/4>" Q - 8&--/(1!4> ./ .2* 030&;* *07;&4&.!/4 .2* 2564 304> <5 .2* -2/(03 !4 .2*!(1&4-* (/041 .2* &;.&(&. .2* 3&-(!,!-* /, .2* >/&. A2!-2 A&3 1*1!-&.*1 ./ !/45303 .2*(3 1*(!=* .2* 4&6*,(/6 .2* ,&-. .2&. ./ (*7(*F 3*4. &.5(3 .2* -2/(03 *(* -;&1 !4 >/&.B 3D!43 &41 2*4-* (*3*6<;*1 >/&.3 2*3* -2/(&;3/4>3 3** 6 ./2&=* (*-*!=*1 &-*(.&!4 1(&6&.!-,/(6 &3 *&(;5 &3 .2* .!6* /, " ./ A2/6 .2* 1!.25(&6< /A*3 !.3 &(.!3.!- 1*=*;/76*4. 2* .(0* 1(&6& !4-;01!4> .(&>!- &41 3&.5(!-7;&53 A&3 *=/;=*1 30<F 3*:0*4.;5 !4 .2*43

(&1!.!/4 &3-44*3 .4* /(!>!4 /. .(&>*&5 ./ &-/4.*67/(&(5 /, ;/4 4&6*1 +(/, - (!& A2!-2"A&3 &-2!*, 3*&./, .2* -0;. /, !/45303 2* 1&.* &33!>4*1 ./ .2!3 !3 VCN / 2*37!3 A&3 &. .2* 3&6* .!6* 7/*. ;*&1*(/, .2* -2/(03 &41 &-./(--/(1!4> ./ .2* .*3.!6/45 /, .2* &4-!*4.3 2!3 7!*-*3 -/43!3.*1 /, & 7(/;/>0* & 3*(!*3 /, -2/(& /4>3 3.&41!4> !4 -;/3* -/44*0!/4 A!.2 .2* &-.!/4 &41 1(&6&.!- (*-!.&.!/43 !4.(/10-*1 <*.A**4 .2* -2/(03*3 2*3* (*-!.&.!/43 A*(* 1*;!=*(*1 <5 .2* ;*&1*(/, .2* -2/(03 &41 A*(* 7&(.;5 !4 .2* ,/(6 /, 6/4/;/>0*3 7&(.;5 !4 .2&./, 32/(. 1!&;/>0*3 A!.2 .2* -2/(03 A2*(*<5 .2* &-.!/4 /, .2* 7;&5 A&3 &1=&4-*1 2* (*-!.*(A&3 *4&<;*1 ./ &77*&(!4 1!,,*(*4. <5 .2* &!1 /, ;!4*4 /(A//1*4 6&3D3 2*3* &;3/&(* 3&!1 ./ 2&=* <**4 -/4.(!=*1 <5 .2* 7/*. 2!63*;, 2* !4=*4.!/4 /, 2*37!3 A2/3* /A4 7!*-*3 3//4 ;&73*1 !4./ /<;!=!/4 A/4 .2* &=/0(/, !3!3.(2.03 &41 .2* &77(/=&, /, .2* .2*4!&4 70<;!- (&>*15 .203 <*-&6* & 30<3.&4.!&; *;*6*4. !4 .2* ..!-,*3.!=&; /! !/45303 2*37!3 !6 6*1!&.* ,/;;/A*(3 A*(* $(, " 8.2* !4=*4./(/, .2* 3&.5(!-1(&6&9 2!3 3/4 &41 , (:" (2(54!-203 *37*-!&;;5 1!1 >//1 3*(=!-* ./A&(13 .2* 1*=*;/76*4. /, .(&>*15 <5 !4.(/10-!4> &4 &-./(&7&(. ,(/6 .2* ;*&1*(/, .2* -2/(03 &41 3/ 7(*7&(!4> .2* A&5 ,/(.(0* 1!&;/>0* * ,0(.2*(!6 7(/=B .2* -2/(03 A2!-2 3.!;; 2/A*=*(/--07!*1 & 1!37(/7/(./!4&.* 37&-* !4 -/6F 7&(!3/4 A!.2 .2* &-./4 /, .2* 7;&5

(&>*15 A&3 (*&;;5 <(/0>2. !4./ <*!4> <5 ! (! A2*4 2* &11*1 &3*-/41 &-./(8-&;;*1 .2* 1<" ./ .2* ,!(3. /(1 " &41 !4 .2!3 A&5 (*41*(*1 1!&;/>0* 7/33!<;* * ,0(.2*(30</(1!4&.*1 .2* -2/(03*1 ./ .2* 1!&;/>0*

J/ (!4 A2/6 .(&>*15 (*&-2*3 !.3 -0;6!4&.!4> 7/!4. &11*1 ./ ;3-25;03 .A/ &-./(3 &.2!(1 /(t(.&7/63.*3" &41 ;3-25;03 &--*7.*1 .2* !44/=&.!/4 !4 2!3 ;&.*(7;&53 2*4-*,/(A&(1 .2(** &-./(3 A*(* (*>0;&(;5 >(&4.*1 <5 ;/ ./ */ *&-2 7/*. &. .2* 70< * *07*43* 4;5 (&(*;5 &41 !4 *0-*7./!4&; -&3*3 A&3 & ,/0(.2 *67;/5*1 /72/-;*3 &;3/ (&!3*1 .2* 406<*(/, .2* -2/(03 ,(/6 .A*;=* ./ ,!,.**4 2* /4;5 /.2*(!67/(.&4. !44/=&./4 10* ./ 2!6 A&3 .2&. 2* >&=* 07 .2* !4.*(4&; -/44*0!/4 7(3*(=*1 <5 KJ-25;03 &6/4> .2* 3*=*(&; 7;&53 /, &.*.(&;/>5 A2!-2 A*(* 7(*3*4.*1 !4 -/67*F .!./4 <5 .2* .(&>!- 7/*.3 &. .2* ,*3.!=&; /, !/45303 #

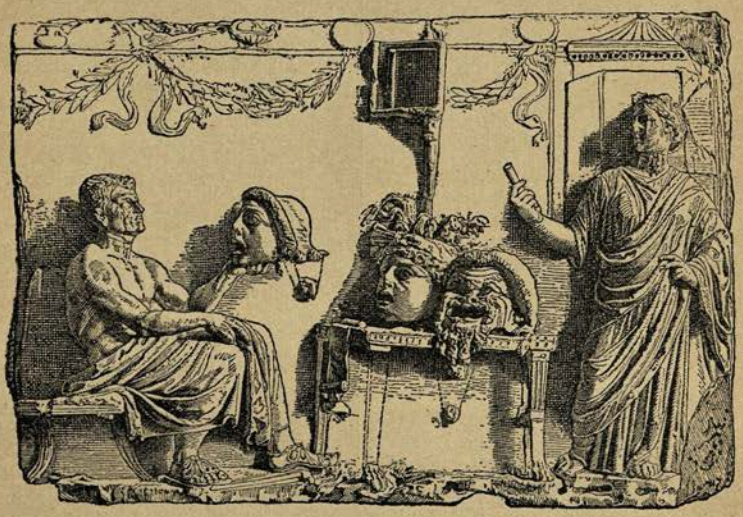
2* .2!(1 >(*&. 6&3.*(/, .(&>*15 !3 9 !4 A2/6 2/A*=*(A* &;(*&15

observe a decline in many respects from the severe standard of his predecessor. During and after the age of these masters of the art, from whom alone have complete dramas come down to us, many other tragic poets were actively employed, whose works are known to us by name alone, or are only preserved in fragments.

It is remarkable that, in the case of the great tragic writers, the cultivation of the Muse of tragedy seems to have been hereditary among their descendants, and among those of Æschylus in particular, for many generations. His son Euphŏrĭōn, his nephew Phĭlŏclēs, his grand-nephews Morsĭmus and Mĕlanthius, his grandson Astydămās, and his great-grandsons Astydamas and Philocles, were poets of more or less note. In the family of Sophocles may be mentioned his son Iŏphōn and his grandson Sophocles; and in that of Euripides, his son or nephew of the same name.

Among the tragic poets of the 3rd century, Iōn, Achæus, Aristarchus, and Nĕŏphrōn were accounted the most eminent. Agăthōn may also be included as the first who ventured to treat a subject of his own invention, whereas hitherto mythical history, especially that of Homer and the cyclic poets, or, in rare instances, authentic history, had furnished the materials of the play. After the Peloponnesian War tragedy shared the general and ever-increasing decline of political and religious vitality. In the 4th century, besides the descendants of Æschylus, we must mention Thĕŏdectēs, Aphăreus, and Chærēmōn, who partly wrote for readers only.

The number of tragedies produced at Athens is marvellous. According to the not altogether trustworthy records of the number of plays written by each poet, they amounted to 1,400. The works of the foremost poets were represented over and over again, especially in the theatres of Asia Minor, under the successors of Alexander. During the first half of the 3rd century Ptolemy Phĭlădelphus built a great theatre in Alexandria, where he established competitions in exact imitation of those at Athens. This gave a new impetus to tragic poetry, and seven poets became conspicuous, who were known as the Alexandrine *Plĕĭăs*, Alexander Ætōlus, Philiscus (*see* cut), Sōsĭthĕus, Hŏmērus, Æantĭdēs, Sōsĭphănēs, and Lŷcŏphrōn. The taste of the Alexandrine critics deemed them worthy to occupy a place beside the five great tragic poets of Athens, Æschylus, Sophocles, Euripides, Ion, and Achæus.



* PHILISCUS TRAGŒDIARUM SCRIPTOR MEDITANS (PHILISCUS IN MEDITATION)
(Relief in Lateran Museum, Rome.)

Inasmuch as tragedy developed itself out of the chorus at the Dionysiac festivals, so, in spite of all the limitations which were introduced as a result of the evolution of the true drama, the chorus itself was always retained. Hence Greek tragedy consisted of two elements: the one truly dramatic, the prevailing metre of which was the iambic

&41' ,/(' .2*' *67*(/(' .4*' / .4*(' ;/(' .4*' ,*3.&;' !(>!43'&41' .2*' *67(*33

(;<04!' ,,;(&(!!' 8,(/6' O " ' H7&5I9' 2*' 4&6*' >!=*4' &6/4>3.' .2*' /6&43' !4' *&(;!*(' .!6*3' ./' .2*' A*&;.25' 6*6<*(3' /,' .2*' 3*=*(&;' .(!<*3' A2/' A*(*' *4.(03.*1' A!.2' .2*' ;*=5!4>' /,' .2*' A&(".&O' 83**' ') & '&41' .2*' 1!3.(!<0.!/4' /,' 7&5' ./' .2*' 3/;1!*(3' ,(/6' .2*' 7(/-**13' /,' !.' 2&.' 7/3!.!/4' .2*5' 2*;1'&,.*(' .2*' 7&56*4.' /,' .2*' .(//73' A&3' 2&41*1' /=*(' ./' .2*' :03*3./(3' !3' 4/.' -;*&(' ,(/6' A&4.' /,' !4,/(F 6&.!/4' /4' .2*' 30<K*-.' 4' .2*' $3.' -*4..!(5' -' .2*5' &77*&(' &3' &' 1!3.!4-.' -;&33' ,(/6' A2!-2' 10(!4>' .2*' 5*&(3' UN"C?' ' (' .2*' .2!(1' ' /,' K01>*3' A&3' &77/!4.*1' ./' (*7(*3*4.' .2*' 7;*<*!&43' .2*' /.2*(' .A/' -/4F 3!3.!4>' /,' 3*4&./(3' &41' D4!>2.3

(;<04!' !;!.06' 86!;!.&(5' .(!<04*39' 2*' 307*(!/(' /,,!-*(3' /,' .2*' /6&4' ;*>!/43' 3!0' !4' 406<*(' .A/' /,' A2/6' &;A&53' 2*;1' .2*' -/66&41' ,/(' .A/' 6/4.23' /4' &;.*(4&.*' 1&53' 2*5' A*(*' &77/!4.*1' <*,/(*' .2*' ;*=5' .//D' 7;&-*B' &3' .2*5' .2*63*;=*3' 2&1' ./' <*' !4' /,,!-*' &.' .2&.' .!6*' (!>!4&;;5' .2*5' A*(*' 4/6!4&.*1' <5' .2*' -/430;3' &,.*(A&,13' 7&(.;5' <5' .2*6' &41' 7&(.;5' <5' .2*' 7*/7;*' !4&360-2' &3' .2*' 7*/7;*' *;*-.*1' .A*4.5",/0(' /0.' /,' .2*' 406<*(' /,' -&41!1&.*3' !4' .2*' = ' ',/(' .2*' ,/0(';*>!/43' A2!-2' A*(*' ;*=!*1' (*>0;&(;5' *=*(5' 5*&(' A2!;*' .2*' -/430;3' (*.&!4*1' .2*' &77/!4.6*4.' ,/(' .2*' (*6&!4!4>' ;*>!/43' 2*5' *(*' 4/.' & '&(0;*' .&D*4' ,(/6' =*.*(&4' -*4.0(!/43' <0.' ,/(' .2*' >(*&.*(' 7&(.' ,(/6' 5/04>' 6*4' /,' 3*4&./(!&;' /(' *:0*3.(!&4' (&4D' A2/' 2&1' 3*(=*1' .2*!(' ,!(3.' -&67&!>4' !4' .2*' .(&!4' /(' /4' .2*' 3.&,' /,' &'>*4*(&;' &41' .2*4' <*>&4' .2*!(' 7/;!.!-&;' -&(**(' A!.2' .2!3' /,,!-*' 3' &' 6&(D' /,' 1!3.!4-.!/4' &;;' /,' .2*6' A/(*' .2*' >/;1' (!4>' /,' .2*' *:0*3.(!&4' /(1*(' 2*5' &;3/' A/(*' &' 4&((/A' /(' <(/&1'70(7;*' 3.(!7*' /4' .2*!(' 1 '&--/(1!4>' &3' .2*5' A*(*' /,' *:0*3F .(!&4' /(' 3*4&./(!&;' (&4D' (*37*-.!=*;5' 4' .2*' .!6*' /,' .2*' 67!(*' .2*5' &;A&53' ;*1' .2*' ;*>!/4' /4' .2*' 6&(-2' &41' !4' <&..;*' 2*5' 1!1' 4/.' 2/A*=*(' &3' 041*(' .2*' *70<;!-' (&4D' !66*1!&.*;5' <*;/A' .2*' -/66&41*(3"!4"-2!*,' <0.' 041*(' .2*' ' 1 ' 1 8 ' .2*' -/66&41*(' /,' .2*' ;*>!/4' &41' !.3' &00!;!&(5' .(//73

(;<04!' !*'<!3'8.(!<04*3' /,' .2*' -/66/439' 2*' 4&6*' >!=*4' &6/4>' .2*' /6&43' ./' .2*' /,,!-!&;' (*7(*3*4.&.!=*3' >(&4.*1' ./' .2*' 7;*<*!&43' !4' CTC' '&3' &' 7(/.*-.!/4' &>&!43.' .2*' /77(*33!/4' /,' 7&.(!-!&43' &41' .2*' -/430;3' .' ,!(3.' .2*5' A*(*' .A/' !4' 406<*(' .2*4' ,!=*' &41' 8&,.*(' CVU9' .*4' 4;5' ,(**"</6' 7;*<*!&43' A*(*' *;!>!<;*' ,/(' .2*' /,,!-*' A2!-2' A&3' &440&;' 2*' *;*-.!/4' .//D' 7;&-*' &.' ,!(3.' !4' .2*' /) ' <0.' &,.*(' CU$' !4' .2*' ' ? ' 041*(' .2*' 7(*3!1*4-5' /,' &45' .(!<04*' A2/' 2&77*4*1' ./' <*' !4' /,,!-*' &.' .2*' .!6*' .' ,!(3.' .2*5' *(*' /4;5' 6&>!3.(&.*3' /,' .2*' 7L*2&' &41' A*(*' A!.2/0.' &45' " 1" ' /,' /,,!-*' /(' *=*4' ;!-./(3' !4F 3.*&1' /,' A2/6' .2*5' 2&1' 3*=*(&;' &..*41&4.3' # ' 2!3' -/4.!40*1' *=*4' &,.*(' .2*5' A*(*' ,0;;5' (*-/>4!3*1' &3' 70<;!-' /,,!-!&;3' 4' .2*' /.2*(' 2&41' .2*5' 7/33*33*1' .2*' 7(!=!;*>*' >0&(&4.**1' ./' .2*6' <5.2*7,/<3' 041*(' 3/;*64' /&.2' /4' .2*' !43.!.0.!/4' /,' .2*!(' /,,!-*' /,' <*!4>' H3&-(/3&4-.!' &41' !4=!/;&<;*" &41' 041*(' .2*' 7(/.*-.!/4' /,' .2!3' (!>2.' .2*5' *0.*41*1' .2*!(' /(!>!4&;;5' ;!6!.*1' 7/A*(3' <5' K01!-!/03' *4-(/&-2F 6*4.3

2*!(' *&(;!*3.' (!>2.' A2!-2' A&3' &.' ,!(3.' *0*(-!3*1' !4' ,&=/0(' /,' .2*' <0.' 3//4' /4' <*2&;' /,' &;;' -!.!Q*43' A&3' .2&.' /,' 7(/F .*-.!/4' # - ' A2!-2' .2*5' -/2;1' 03*' &>&!43.' &;;' 6&>!3.(&.*3' A!.2' .2*' *0-*7.!/4' /,' .2*' 1!-.&./(' 2!3' *4&<;*1' .2*6' ./(1*(3' <5' &' 3!67;*' =*./' # " ' 4' ,&-*' /,' &45' /77/3!.!/4' .2*5' A*(*' &0.2/(!Q*1' ./' 2&=*' (*-/0(3*' ./' -/670;3/(5' 6*&30(*3' 30-2' &3' &((*3.',!4*3'/('!67(!3/46*4.' 2*!('7/A*(' /4;5' *0.*41*1' /=*(' -&4*' &41' !.3' 16*1!&.*' 4*!>2</0(2//1' &41' A&3' ,0(.2*(' (*3.(!-.*1' <5' .2*' (!>2.' /,' =*./' A2!-2' .2*5' -/0;1' *0*(-!3*' &>&!43./4*' &2/.2*(' /,' .2*' 7(/F .*-.!/4' /,' .2*' !41!=!10&;' .2*5' /4;5' !4.*(F 7/3*1' A2*4' .2*!(' &!1' A&3' &3D*1' /(' .2!3' 70(7/3*' .2*!(' 2/03*' 3./1' /7*4' 1&5' &41' 4!>2.' ./' &45' A2/' 3/0>2.' .2*!(' &33!3.&4-*' &41' .2*5' .2*63*;=*3' -/0;1' 4*=*(' <*' &<3*4.' ,(/6' .2*' -!.5' &' A2/;*' 1&5' *0-*7.' 10(!4>' .2*' <D ' ;$ " ' A2*4' &;;' <03!4*33' A&3' 3037*41*1' !.2/0.' &77*&;' .2*5' -/0;1' !4.*(7/3*' !4' &45' 6*&30(*' A2!-2' &,,*-.*1' .2*' A2/;*' 30-2' &3' .2*' ;*=5!4>' /,' .(//73' &41' .2*' (&!3!4>' /,' .2*' A&(".&O' & ' 2!3' (!>2.' /,' !4.*(-*33!/4' A2!-2' /(!>!4&;;5' A&3' -/4,!4*1' ./' .2*' -' &41' A2!-2' -/0;1' 4*=*(' <*' *0*(-!3*1' *0-*7.' <5' .2*' .(!<04*' !4' 7*(3/4' &41' 3!60;.&4*/03;5' A!.2' .2*' 7(/-**1!4>' .2&.' A&3' ./' <*' 7(/2!<!.*1' A&3' !4' -/0(3*' /,' .!6*' >(&10&;;5' *0.*41*1' 04.!;' ,!4&;;5' .2*' =*./' /,' .2*' .(!<04*3' *4&<;*1' .2*6' ./' 3037*41' &;6/3.' &9;' /,,!-!&;' 7(/-**1!4>3' &16!4!3.(&.!=*' 6*&30(*3'.(&43&-.!/43' A!.2' .2*' *4&.*' &41' 6**.!4>3' /,' .2*' 7*/7;*' ,/(' .2*' 70(7/3*' /,' ;*>!3;&.!/4' &41' *;*-.!/4' *.-' 2*5' 2&1' .2*' (!>2.' /,' -&;;!4>' 6**.F !4>3' /,' (',/(' .2*' 1!3-033!/4' /,' &,,&!(3' (*;&.!4>./' .2&.' </15' (/6' .2*' .!6*' .2&.

.2*' &0.2/(!.5' /,' .2*3*' 6**.!4>3' *0.*41*1' /=*(' &;;' .&.*' <03!4*33' &41' .2*!(' 1*-(**3' 8-&;;*1' A*(*' -/43!1*(*1'<!41!4>' /4' .2*' A2/;*' 7*/7;*' .2!3' (!>2.' *4&<;*1' .2*' .(!<04*3' ./' 7(/7/3*' -2&4>*3' !4' 7(!=&.*' /(' 70<;!-' ;&A' .' !3' .(0*' .2&.' ,/(' -&((5!4>' /0.' .2*!(' 7(/7/3&;3' .2*5' A*(*' 1*7*41*4.' /4' .2*' 3&4-.!/4' /,' .2*' *4&.*" <0.' &3' .2*5' A*(*' 3&,*',(/6' .2*' (!3D' /,' 7(/3*-0.!/4' .2*5' 3/6*.!6*3' &3306*1' !4' -&3*' /,' 4**1' &4' &0.2/(!.5'307*(!/(' ./' .2&.'</15' (!>!4&;;5' .2*5'2&1'4/', -!&;'(*;&.!/43'A!.2'.2*' *4&.*' <0.' &,.*(A&(13'<5' =!(.0*' /,' .2*!(' !4=!/;&F <!;!.5' .2*5'/<.&!4*1' .2*' (!>2.' /,' 3!..!4>' /4' .2*!(' <*4-2*3' #Ł ' &.' .2*' /7*4' 1//(' /,' .2*' 3*4&.*"2/03*' 3/&3'./'<*'7(*3*4.'&.' .2*' 1*;!<*(&.!/43' &41' !4' -&3*' /,' 4**1' ./' !4.*(F ,*(*' <5' =!(.0*' /,' .2*!(' - ' //4' 2/A*=*(' .2*5' *=*4' /<.&!4*1' &' 3*&.' !4' .2*' *4&.*' &41' &' >*4*(&;' (!>2.' /,' =*./" 04.!;' ,!4&;;5' .2*5' &-:0!(*1' .2*' (!>2.' /,' 3066/4F !4>' &' 6**.!4>' /,' .2*' *4&.*' &41' /,' 6&D!4>' 7(/7/3&;3' .' .2*' 3&6*' .!6*' .2*5' &-:0!(*1' .2*' 7(!=!;*>*' /,' *4.(&4-*' !4./' .2*' *4&.*' &.' .2*' ,!(3.'-*4303' &,.*(' .2*' *07!(&.!/4' /,' .2*!(' /,,!-*

2*' /,,!-*' /,' .(!<04*' (*&;;5' .2*' 2!>2*3.' !4' .2*' .&.*' A&3' *67;/5*1' <5' 1*6&>/>0*3' !4' .2*' ;&.*(' 1&53' /,' .2*' *70<;!-' !4' .2*' !4.*(*3.3' /,' &' 7&(.5' &41' ./' .2*' !4K0(5' /,' .2*' -/66/4A*&;.2' 5' 0;;&' !4' B' 7-' !.3' 7/A*("A&3' -0.' 1/A4' ./' .2*' =*(5'4&((/A*3.' ;!6!.3' -2!*,;5' <5' .2*' (*>0;&.!/4' .2&.' &,.*(' .2*' .(!<04&.*' 4/' /4*' A&3' *;!>!<;*' ,/(' &' -06;*' /,,!-*' /A*=*(' &3' 3//4' &3' VN' ' (' .2*(*' &6*' &-/67;*.*' (*&-.!/4' &41' &' (*.0(4' ./' .2*' /;1' 3.&.*' /,' .2!4>3' A2!-2' ,!4&;;5' *4.&!;*1' ./.&;' &4&(-25' &41' &3' &' 4&.0(&;' -/43*:0*4-*' .2*' 3/;*' (0;*' /,' &*3&(' &41' 0>03.03' 4' CR' ' (' &*3&(' ./' 3*-0(*' 2!3' 7/3!.!/4' &3306*1' .2*' .(!<04!-!&4' 7/A*(' &.' ,!(3.' A!.2/0.' ;!6!.' /,' .!6*' &41' &,.*(F A&(13' A!.2/0.' ;!6!.' /,' *0.*4.*' &41' !4' ?' 0>03.03' ,/;;/A*1' 2!3*0&67;*' (/6' .2&.' .!6*' .2*' .(!<04&.*' <*-&6*' .2*' 7!=/' /,' .2*' !67*(!&;'7/A*(' *=*(.2*;*33'04.!;*<*5/41' .2*' .!6*' /,' /43.&4.!4*' .(!<04*3' ./' .2*' 406<*(' /,' .*4' -/4.!40*1' ./' *0!3.' 2*5' A*(*' *;*-.*1' <5' .2*' *4&.*' &41' &3' &' (0;*' ,(/6' &6/4>' .2*' 3*4&./(3' <0.' *(*' !4' -/6" ;*.*' 1*7*41*4-*' /4' .2*' A!;;' /,' .2*' *67*(/(' & /(1*(' ./' ,!41' -&41!&.*3' ,/(' .2*' /,,!-*' A2!-2' A&3' 4/A' <0.' ;!..;*' 3/0>2.' &,.*(' 0>03.03' 6&1*' .2*' -&41!1&.0(*' !4' .2*' -&3*' /,' .2*' 7;*<*!&43',/(' .2*' 7(3*./(32!7' 1*7*41*4.' 4' 2&=!4>' 2*;1' .2*' .(!<04&.*' 2*' /,,!-*' A&3' &;3/' .2(/A4' /7*4' ./' 3/43' /,' ,(**16*4

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/,' .2*' -&=&;(5' 4/6!4&.*1'<K' .2*' .!6*' <*!4>

!1< 3' (!>!4&;;5' .2*' 4&6*' /,' *&-2' /,' .2*' .2(**' -;&33*3' /,' /6&4' 7&.(!-!&43' #" ' + ' &41' ; ' A2/' A*(*' 1!=!1*1' !4./' .*4' ' & ' 4' 1!(*-.' -/4.(&3.' A!.2' .2!3' A&3' .2*' -;&33!,!-&.!/4' 6&1*' <5' D!4>' *(=!03' A2*(*<5' /6&4' :!.!0*43'./>*.2*(' A!.2' .2*' A2/;*' .*((!./(5' /,' /6*' A*(*' 1!=!1*1' !4./,/0(' -!.5' # ' " !' &41' .A*4.5"3!0' -/04.(5' .(!<*3' # ' :' 2*3*' A*(*' >*/>(&72!-&;' 1!=!3!/43' &--/(1!4>' ./' 2!-2' .2*' -*4303' A&3' .&D*4' .(//73';*=!*1' &41' .2*' A&(' .&0' !67/3*1' &41' -/;;*-.*1' (/6' .!6*' ./.!6*' .2*' 406<*(' A&3' 1!6!4!32*1" <0.' !.' !4F -(*&3*1' &>&!4' 04.!;' @C$' ' (' A2*4' !.' A&3' (&!3*1' ./' .2!(.5",! *' 8,/0(' -!.5' &41' .2!(.5"' /4*' -/04.(5' .(!<*39' &41' .2!3' 406<*(' (*F 6&!4*1',!0*1',/(' .2*' ,0.0(*' *=*4' 041*(' .2*' 67!(*' 2*' 4*A' -!.!Q*43' &16!..*1' &,.*(' @C$' A*(*' 1!3.(!<0.*1' &6/4>3.' .2*' *0!3.!4>' .(!<*3' 2!3' A&3' .2*' *&3*' A!.2' &;;' .2*' .&;!&4'-/6604!.!*3'A2!-2'!4'RT' -' '<5'.2*' *0.*43!/4' /,' .2*' -!.!Q*432!7' ./' &;;' 1A*;;*(3' !4' .&;5' A*(*' !4-;01*1' !4' .2*' .(!<*3 =*(5'-!.!Q*4'8 !.2' .2*' *0-*7.!/4' /,' .2/3*' -&;;*1' >0' <*;/4>*1' ./' 3/6*' 37*-!&;.(!<*' ./' A2!-2' 2*' 2!63' ,' /(' 2!3' &4-*3./(32&1' <**4' &33!>4*1' *=*4' A2*4' 2*' 4/' ;/4>*(' 2&1' 2!3' 2/6*' .2*(*' --/(1!4>;5' !4' .2*' /,,!-!&;' 1*3!>4&.!/4' /,' &' ,(**' -!.!Q*4' .2*' 4&6*' /,' 2!3' .(!<*' A&3' &11*1' ./' 2!3' ,&6!;5' 4&6*3' (!>!4&;;5' .2*' -/04.(5' .(!<*3' A*(*' /4' &4' *:0&;!.5' A!.2' .2/3*' /,' .2*' -!.5' <0.' 30<3*:0*4.;5' .2*5' A*(*' 1**6*1' 307*(!/(' /4' .2*' >(/041' .2&.' .2*5' -/43!3.*1' /,' /A4*(3' /,' 7(/7*(.5' !4' ;&41' A2!;3.' .2*' -2!*,' 7&(.' /,' .2*' -!.5' .(!<*3' A&3' 6&1*' 07' /,' 6*(F -2&4.3' A/(D6*4' &41' .2*' 7(/;*.&(!&.*' A2/' 7/33*33*1' 4/' ;&41*1' 7(/7*(.5' &41' &6/4>3.' A2/6',(**16*4' A*(*' !4-;01*1

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Triumph. The Roman festal procession at the head of a victorious host through the city to the Capitol, the highest distinction which could be accorded to a victorious commander. Only the regular holder of the highest command (*imperium*), a dictator, consul, or prætor, was entitled to this honour, and that too even when the decisive victory had not been fought under his immediate direction. It was also essential that the victory should be an important one gained in a regular war; *i.e.* not against citizens or rebellious slaves. Permission to celebrate a triumph was granted, with the necessary expenses, by the Senate. Up to the day of the triumph, the general was obliged to remain before the city, because his command expired at the moment he entered it. Accordingly it was outside the city, generally in the temple of Bellona, that the Senate assembled to receive his report.

(1) TRIUMPHAL PROCESSION.

Relief from the Arch of Titus, representing the spoils from the temple at Jerusalem, including the seven-branched candlestick, the table for shewbread, and the golden trumpets.)

On the day of the triumph, the procession, starting from the *Campus Martius*, proceeded through the *Porta Triumphālis* into the *Circus Flāmĭnĭus*; then, after entering the city through the *Porta Carmentālis*, it marched on into the *Circus Maxĭmus*, and thence to the *Via Sacra*, and up this across the Forum to the Capitol (*see* plan under FORUM). The streets were adorned with garlands, the temples opened, and, as the procession passed by, the spectators greeted it with the acclamation, *Io trĭumphē!* The procession was headed by the State officials and the Senate. Then followed trumpeters, and after them the captured spoils (*see* fig. 1); next came painted representations of the conquered country, models of the captured fortresses, ships, etc., either carried on men's shoulders or placed in chariots; then the crowns of honour dedicated to the triumphant general by the towns of the province, originally of bay leaves, later of gold. Then the white bulls intended for sacrifice on the Capitol, with gilded horns, decorated with ribands and garlands, and accompanied by youths and boys in holiday attire, carrying gold and silver chalices. Then followed in chains the distinguished captives who had been spared for the triumph, and whose fate it was, when the triumphal car reached the slope of the Capitol, to be dragged off to prison, there almost invariably to meet with immediate execution. Behind these followed the lictors of the general in purple tunics, with their *fascēs* wreathed in bay leaves; then a body of musicians playing on the lyre, and priests with censers; and lastly the triumphal car, gilded, and garlanded with bay leaves, and drawn by four white horses, which were also wreathed with garlands. On it stood the general; in earlier times his body was dyed with vermilion [Pliny, *N. H.* xxxiii 111]. His head was wreathed with bay, and he wore the garb of the Capitoline Jupiter, furnished him from the treasury of the Capitoline temple; *viz.* a purple tunic embroidered with golden palm-shoots (*tŭnĭcă palmātă*), a toga decorated with golden stars on a purple ground (*tŏgă pictă*), gilded shoes, and an ivory sceptre in his left hand, with an eagle on the top; in his right he carried a branch of bay. Over his head a public slave, standing behind

2!6 2*;1 .2* >/;1*4 -(/A4 /, 07!.*(&71 A2!;* .2* 7*/7;* 32/0.*1 &--;&6&F .!/43 -&;;*1 ./ 2!6 H //D <*2!41 5/0 &(41 (*4!*6<*(5/0 &(* 6/(.&; I f *(.0;;!&4 ? g* &;3/ >0&(1*1 2!6 3*;,&>&!43. *4=5 &41 .2* *=!;* *5* <5 &4 &60;*. A2!-2 2* A/(* *!.2*(/4 2!3 7*(3/4 /(.!*1 ./ .2* <&(!.2 2!6 /4 .2* -&(&41 3/6*F .!6*3 /4 .2* 2/(3*3 3&. 2!3 5/04>*3.-2!;F 1(*4 A2!;* 2!3 >(/A4 07 /43(/1* <*2!41 A!.2 2!3 ;!*0.*4&4.3 &41 /,; -*(3 2* 3/;1!*(3 <(/0>2. 07 .2* (*&(&;; A*&(!4> 1*-/(&.!/43 &41 32/0.!4> (4 &--/(1&4-* A!.2 &4-!*4. -03./6 .2*5 &;3/ &;.*(4&.*;5 3&4> 3/4>3 !4 7(&!3* /, .2*!(>*4*(&; &41 0..*(*1 (!<&;1 K*3.3 &. 2!3 *07*43* 4 &((!=!4> &. .2* .*67;* /, &7!./;!4* 07!.*(.2* >*4*(&; &3 &./D*4 /, 2!3 =!-./(5 7;&-*1 /4 .2* ;&7 /, .2* >/1 .2* <&5 ;*&=*3 A(*&.2*1 &(/041 .2* ./>*.2*(A!.2 2!3 /A4 <(&4-2 /, <&5 /(8!4 ;&.*(.!6*39 & 7&;6"<(&4-2 .2* &41 2!3 ;&0(*;"32//. * .2*4 /,,*(*1 .2* 3&-(!,!-* /, .2&4D3>!=!4> 8-7 ,!> @9

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2* ,*3.!=&; /(!>!4&;;5 ;!6!.*1 ./ /4* 1&5 >(&10&;;5 *0.*41*1 !.3*;, ./ 3*=*(&; . -/4-;01*1 A!.2 & <&4:0*. ./ .2* .&.* /,! -!&;3 &41 .2* *4&.* &41 3/6*.!6*3 &;3/ A!.2 &4 *4.*(.&!46*4. ,/(.2* 3/;1!*(3 &41 7*/7;* , .2* 7*(6!33!/4 ./ -*;*<(&.* .2* /(1!4&(5 .(!0672 A*(* (*,03*1 ./ & >*4*(&; 2* -/0;1 041*(.&D* /4* /4 2!3 /A4 &--/04. .2* .*67;* /, 07!.*(&.;&(!3 /4 .2* ;<&4 !:; , .2* -/4:0*(/(2&1 4/. ,/0>2. 041*(2!3 /A4 &037!-*3 /(!, 2!3 *07;/!.3 1!1 4/. &77*&(./ 6*(!. .2* 2!>2*3. ,/(6 /, .(!0672 2* A&3 &;;/A*1 ./ 2/;1 /4* /, &4 !4,*(!/(D!41 -&;;*1 &4 =

4 .2!3 .2* -/4:0*(/(*6*(*0 04* O/A4 *!.2*(/4 ,//. 8&3 !4 *&(;!*(.!6*39 /(/4 % 2/(3*<&-D -;&1 !4 .2* 1 &41 A!.2 & A(*&.2 /, 65(.;* /4 2!3 <(/A 41*(.2* 67!(* /4;5 .2* *67*(/(3 .(!0672*1 <*-&03* .2* >*4*(&;3 -/66&41*1 &3 .2*!K(;!*0.*4&4.3 & 1 1 041*(.2* &037!-*3 / .2* *67*(/(3 &41 4/. 041*(.2*!(/A4 !-./(!/03 >*4*(&;3 A*(* .2*4 /<;!>*1 ./ -/4.*4. .2*63*;=*3 A!.2 .2* " " (*! * .2* (!>2. /, &77*&(!4> /4 2/;!1&5 /--&3!/43 !4 .2* !43!>4!& /, .(!0672 .2* " /(1 &41 A(*&.2 /, <&5 ;*&=*3 ,.*((&K&4 3 .!6*= *=*4 .2!3 D!41 /, 6!;!.&(5 1!3.!4-.!/4 -*&3*1 &3 &;; -/430;3 A*(* 7*(6!..*1 ./ A*&(.2* .(!0672&; 1*-/F (&.!/43 10(!4> ,*3.&; 7(/-*33!/43 (!0672&; (-2*3 .57* /, 6/40F 6*4.&; &(-2!.*-.0(* 7*-0;!&(./ .2* /6&43 2*5 A*(* *(*-.*1 &3 6*6/(!&;3 !4 2/4/0(/, =!-./(!/03 >*4*(&;3 &41 8!4 ;&.*(.!6*39 !4 2/4/0(/, !41!=!10&; *67*(/(3 4 &(-2!.*-.0(&; 1*3!>4 .2*5 04!.*1 .2* /6&4 &(-2 A!.2 .2* (**D -/064 4 /6*84/. /6*4.!/4 .2* (*6&!43 /, .2* (-2 /, (0303 .2*(* &(* 3.!;; *0.&4. 8$9 .2* &(-2 A2!-2 .2* *4&.* &41 7*/7;* *(*-.*1 &,.*(.2* 1*&.2 /,) !4 6*6/(5 /, .2* -/4F :0*3 /, 01&*& 8UN 2!3 -/43!3.3 /, .A/ 6&33!=* 7!*(3 /, *4.*;!- 6&(<;* !4F -;/3*1 <5 7!;&3.*(3 &41 K/!4*1 ./>*.2*(<5 &=&0;.*1 &(-2 &41 /, &;/,.5 *4.&<;&.0(* /4 A2!-2 .2* 1*1!-&.!/4 !3 !43-(!<*1 % 2 .2* !44*(K&6<3 /, .2* &(-2 &(* .A/ ,!4* (*;!*,3 (*7(*3*4.!4> 8!9 .2* *67*(/((/4 .2* .(!0672&; -&(&41 8!!9& >(/07 /, 3/;1!*(3 <*&(!4> .2* 37/!;3 /, .2* *A!32 &(&) & /,!> $ 9 8@9 2* (-2/, $ A&A) ,!! A!.2 .2(** *4.(&4-*3 2!3 !3 /, (*6&(D&<;* 1!6*43!/43 <0. .2* 1*-/(&.!/4 .2/0>2 ,&((!-2*(!3 /=*(-2&(>*1 !. A&3 *(*-.*1 <5 .2* 7*/7;* !4 @N !4 2/4/0(/, .2* *67*(/(&,.*(2!3 =!-./(!*3 /=*(.2* &(.2!&43 8 9 2* (-2/, " &;3/ A!.2 .2(** *4.(&4-*3 2!3 A&3 <0!;. &,.*($ & -0.9 <5 03!4> -*(.&!4 7/(.!/43 & Q .2* (*;!*,3 /4 </.2 .2* ,(/4.3 &41 /4 .2* !44*(3!1*3 /, .2* 6!11;* &(-29 /, /4* /, .2* .(!0672&; &(-2*3 /, (&K&4 A2!-2 A&3 1*3.(/5*1 ./(.2!3 70(7/3* 6/4> .2/3* 4/. !4 6* 603. <* 6*4F .!/4*1 .2&. &.((&4>* !4 .2* 3/0.2 /, (&4-* (-2*3 /, 2/4/0(A*(* &;3/ *(*-.*1 ,/(/.2*(3*!A!-*3 0-2 &(* .2&. /, 0>03.03 &. (!6;406 &7 " /4 .2* /--&3!/4 /, .2* -/67;*.!/4 /, .2* (/&1 ;*&1!4> ./ .2&. 7;&-* ,(/6 /6 * .2&. /, (&K&4 &. " " /4 .2* (*3./(&.!/4 /, .2*

2&(</0(' 4' /6*' !.3*;,'<*.A**4'.2*'3!.*' /,'.2*' = '&41'.2*'A ' ' .2*(*' !3' &' (!-2;5' 1*-/(&.*1' <0.' -/&(3*;5' -0;7.0(*1' >&.*A&5' A!.2' &' ,;&.' ;!4.*;' 2*&(!4>' &4' !43-(!7.!/4'(*-/(1!4>' !.3' *(*-.!/4'8!4')' @NC9' !4' 2/4/0(' /,' *7.!6!03' *=*(03' &41' /.2*(' 6*6F <*(3' /,' .2*' !67*(!&;' 2/03*' <5' .2*' 3!;=*(36!.23' /(' <&4D*(3'& 1 " ' &41' /.2*(' 6*(-2&4.3' /,' .2*' A ' ' 2*' &(-2' /,' .2*' *(>!!d' &.' , ' !4' 3.(!&' !3' &' ,&6!;5' 6*F 6/(!&;

(!4 6 5.(' ' + '

(/>03' **' / !03' :

(/!+' 4103' $ ' ! -43' 7' $ T

(/;;43' '5/04>*(' 3/4' /,' (!&6' &41' -...*' A2/' A&3' 3;&!4' 0<5' -2!;;*3' --/(1!4>' ./' .2*' ;&.*(' ;*>*41' -2!;;*3' ;&5'!4'A&!.',/(' .2*' </5' A2*4' 2*' A&3' *0*(-!3!4>' 2!3' 2/(3*' 4*&(' &' A*;;' !4' ,(/4.' /,' .2*' -!.5'&41' 3;*A' 2!6' &3' 2*' ,;*1' ./' .2*' .*67;*' /,' 256<(6&4' 7/;;/'K03.' <5' .2*' &;.&(' /,' .2*'>/1' &.' .2*' =*(5' 37/.' A2*(*' 2*' 2!63*;,' A&3' 1*3.!4*1' &,.*(A&(13' ./' 6**.' 2!3' ,&.*' -F -/(1!4>' ./' &4/.2*(' &--/04.' (/!;03' =*4F .0(*1' ./' 6**.' -2!;;*3' !4' /7*4'-/4,;!-.'<4.' A&3' 1(&>>*1' ./' 1*&.2' <5' 2!3' /A4' 2/(3*3' # '1 ',!>' $N9

(/K&4' &(' 2*' 3./(5' /,' .2*' (/K&4' &(' ;!D*' .2*' 3./(5' /,' .2*' (>/&&0.3' 041*(A*4.' !4' .2*' -/0(3*' /,' .!6*' 6&45' -2&4>*3'&41' &67;!,!-&.!/43' 2*' D*(4*;' /,' .2*' 3./(5!3'-/4.&!4*1'!4' .2*' .A/'*7!-'7/*63' /,' /6*(M' .2*' ' '&41' .2*' : :' 2*' !4-!1*4.3' *!.2*(' 4&((&.*1'/(' <(!*,;5' ./0-2*1' 07/4' !4' .2*3*' A*(*' *;&</(&.*1' /(' 1*=*;/7*1'<5' .2*' 7/3." /6*(!-'7/*.3'7&(.;K(' <5'-/44*-.!4>'.2*6'A!.2'/.2*(' 7/70;&(' .(&1!F .!/43'&41'7&(.;5'<5' .2*' &11!.!/4' /,' ,0(.2*(' 1*.&!;3' /,' .2*'!(' /A4' !4=*4.!/4' 2!;*' !4' /6*(' !.' !3' 3!67;5' .2*' (&7*' /,' *;*4' A2!-2' !3' .2*' /--&3!/4' /,' .2*' A&(' &' ;&.*(' ;*>*41' .(&-*1' !.3' /(!>!4' ./B.2*' 6&((&!>*' /,' `;*03' &41' 2*.!3' A2*4' ,!(;3' .2(*A' 1/A4' &6/4>' .2*' &33*6<;*1' >/13' .2*' >/;1*4' &77;*' !4F 3-(!<*1'A' (' ' 2*' :0&((*;' .2&.' *430*1' <*.A**4' *(&' .2*4*' &41' 72('" 1!.*',/(' .2*'7(!Q*' /,' <*&0.5' A&3' 1*-!1*1' <5' &(!3' !4',&=/0(' /,' 72(/1!.*' A2/' !4'(*.0(4' 3*-0(*1' 2!6' .2*' 7/33*33!/4' /,' *;*4' A2!;*' *(&"&41' .2*4*' <*-&6*',(/6' .2&.' .!6*' /4A&(1' .2*' !67;&-&<;*' *4*6!*3' /,' .2*' (2/;*' (/K&4' (&-*

--/(1!4>' ./' /6*(' &,.*(' *;*4' 2&1' <**4' -&((!*1' /,;;' <5' &(!3' *4*;&!!3' &41' >&6*64/4' =!3!.*1' &;' .2*' (**D' -2!*,"

' N ' '

.&!43' !4' .0(4' &41' 7(*=&!;*1' /4' .2*6' ./' .&D*' 7&(.' !4' .2*' *07*1!.!/4' A2!-2' .2*5' A*(*' 7(*7&(!4>'./' &=*4>*'.2*' A(/4>' -F -/(1!4>'./'.2*' ;&.*(' &--/04.' .2*' 6&K/(!.5'/,

; ' ,. ' ' ';! '

8 1/4!*1'A!.2'(*;!*,3',(/6'.2*' (-2' /,' (&K&4 9

.2*' -2!*,.&!43'A*(*' &;(*&15'</041'./',/;;/A' .2*' *07*1!.!/4'<5'&4'/&.2'A2!-2' .2*5'2&1' 3A/(4' ./' 541J(?13' >&6*64/4' A&3' -2/3*4' -/66&41*("!4"-2!*,' 4*0.' ./' 2!6' .2*' 6/3.'7(/6!4*4.' (**D' 2*(/*3' &(*' 2!3' <(/.2*(' *4*;&03' -2!;;*3' &41' &.(/-;03' .2*'.A/' K&0*3' *0-*(' *3. (' &41' 213' 3/4' 4.;; -203' 1533*03' !/6*1>3' 1 6*4*03' &41' 2!;/-. .*3'A2/' 2/A*=*(' &.' .2*' =*(5' /0.3*.' /,' .2*' *07*1!.!/4' 2&1' ./' <*' ;*,.' <*F 2!41'&41' 1/*3'4/.' &77*&(' /4' .2*' 3-*4*' /,' &-.!/4' 04.!;' K03.' <*,/(*' .2*' ,&;' /,' (/5' &.*(' *7!-3' &11' .2*' 4&6*' /,' ;&6*1*3 2*' *4.!(*' 2/3.' /,' $NN' NNN' .4*4' &41' $ $R?' 32!73' &33*6<;*1' !4' .2*' 2&(</0(' /,' 0;!3' *(*' A2!;*' .2*5' A*(*' 3&-(!,!-!4>' 041*(' &7;&4*' .(**' &' 34&D*' 1&(.*1' /0.' ,(/6' 041*(' .2*' &;.&(' &41' &3-*41*1' .2*' .(**' &41' .2*(*' &,.*(' 1*=/0(!4>' &' <(//1' /,' *!>2.' 5/04>' 37&((/A3' &41' .2*' 6/.2*("<!(1' 2*(3*;,' A&3' .0(4*1'!4./'3./4*' 2!3' /6*4' &;-2&3' .2*' 3**(' /,' .2*' 2/3.' !4.*(7(*.*1'./' 6*&4' .2&.' A&(' A/0;1' ;&3.' 4!4*' 5*&(3' &41' .*(6!F 4&.*' !4' .2*' .*4.2' A!.2' .2*' 1*3.(0-.!/4' /,' (/5' W' ' !!' @TT" @g' >&6644/4' 2&1' &;(*&15'(*-*!=*1'&4'/(&-;*',(/6'.2*' *;72!&4' >/1' .2&.' (/5' A/0;1' ,&;;' A2*4' .2*' <*3.' /,' .2*' (**D3' :0&((*;,:*1' 4' /6*(' .2*' -(/33!4>'./' (/5',/;;/A3'!6 6*1!&.*;5" <0.' !4' .2*' ;&.*(' 3./(5' .2*' 2(**D3' &.' ,!(3.' ;&41' <5' 6!3.&D*' !4' 53!&' !4' .2*' -/04.(5' /,' + (' # ' &41' <*!4>' 1!37*(3*1' <5' &

3./(6 &41 1(!=*4 <&-D ./ (**-* &33*6<;* &,(*32 &. 0;!3 A2*4-* .2*5 &(* /4;5 7*(6!..*1 ./ 3*. /0. &,.*(.2* 3&-(!,!-* / (1 " 8&4 !4-!1*4. *4.!(*;5 04D4/A4 ./ /6*(9 4 .2* (**D 3!1* .2* ,!(3. ./ ;&;; !3 , < A2/ !3 .2* ,!(3. ./ ;&41 2*1 !3*6<&(D&.!/4 -&44/. .&D* 7;&-* =!4.!; -2!;;*3 2&3 3;&!4 .2* 6!>2.5 $: " # @9 ,.*(7!.-2!4>.2*!(-&67 1533*03 &41 *4*;&03 7(/-**1 &3 &6<&33&1/(3 ./ (/5 ./ 1*6&41 .2* 30((*41*(/ *;*4 0. .2!3 7(/7/3&; !4 37!. * / .2* !4-;!4&.!/4 / ; *;*4 2*43*;; &41 .2* &16/4!.!/4 / .2* (/K&4 " " ,&;;3 ./ .2* >(/041 /A!4> ./ .2* /77/3!.!/4 / &(!3 &41 A&(!3 1*F -;&(*1 2* 406<*(/ .2* (/K&43 A2/3* -2!*, 2*(/ !3 3-&(-*;5 &6/04.3 ./ .2* .*4.2 7&(. / .2&. / .2* <*3!*>*(3 &41 &;.2/0>2 .2*5 7/33*33 .2* &!1 / -/04.;*33 <(&=* &;;!*3 30-2 &3 ! " "&41 6 !4 .2*!(.*&(/ -2!;;*3 .2*5 1&(* 4/. (!3D & >*4*(&; *4>&>*6*4. 4 .2* /.2*(2&41 .2* -23*&43 -&4 1/ 4/.2!4> &>&!43. .2* A*;;",/(.!,!*1 &41 1*,*41*1 ./A4 &41 3** .2*63*;=*3 -/4,!4*1 ./ ;&5!4> &6<03-&1*3 &41 1*=&3.&.!4>.2* 30((/041F !4>-/04.(5 &41 -/67*;;*1 <5 ;&-D / 7(/F =!3!/43 ./ 2&=* (*3/0(-* ./ ,/(&>!4> *07*F 1!.!/43 !4 .2* 4*!>2</0(2//1 041*(.&D*4 <5 3*& &41 <5 ;&41 041*(.2* >*4*(&;32!7 / -2!;;*3 . ;*4>.2 .2* 1*-!3!=* .*4.2 5*&(&((!=*3 2* /6*(!-' 4&((&.*3 .2* *=*4.3 / .2!3 5*&(-/4,!4!4> !.3*;; ./ .2* 37&-* / ,!,.5"/4* 1&53 " 2(53*3 7(!*3./ 7/;;/ -/6*3 !4 7(!*3.;5 >&(<!4./.2* -&67 / .2* (**D3 ./ (&43/6 2!3 1&0>2.*(2(53*!3 ,(/6 >&6*64/4 * !3 (01*;5 (*70;3*1 &41 7/;;/ -/43*F :0*4.;5 =!3!.3 .2* (**D3 A!.2 & 7;&>0* 4 &4 &33*6<;5 / .2* (**D3 3066/4*1 <5 -2!;;*3 &;-2&3 1*-;&(*3 .2* /4;5 6*&43 / &77*&3!4> .2* >/1 ./ <* .2* 30((*41*(/ .2* >!(;' A!.2/0. (&43/6 >&6*64/4 &33*4.3 ./ .2* >*4*(&; A!32" <0. <5 A&5 / -/67*43&.!/4 .&D*3 ,(/6 -2!;;*3 A2/6 2* -/43!1*(3 ./ <* .2* !43.!>&./(/ .2* A2/;* 7;/. 2!3 ,&=/0(!.* 3;&=* (!3*!3 -2!;;*3 A!.21(&A3 !4 & (&>* ./ 2!3 .*4. &41 !67;/(*3 2!3 6/.2*(2*.!3 ./ /<.&!4 ,(/6 L*03 &7(/6!3* .2&. .2* (**D3 32/0;1 6**. A!.2 1!3&3.*(!4 ,!>2.!4> .2* (/K&43 04.!; >&6*64/4 32/0;1 >!=* 2*(3/4 -/67;*.* 3&.!3,&-./!4 W'' !g 2* (/K&43 !66*1!&.*;5 .&D* .2* /7*4 ,!*;1 &41 >&6*64/4 !3 !410-*1 <5 & 7(/6!3* /, =!-./(5 -/4=*5*1 !4 & 1(*&6 ,(/6 L*03 ./ &77/!4. .2* ,/;;/A!4> 1&5 ,/(& <&..;* f!!g 2* 2/3.3 &(* &;(*&15 3.&41!4> /77/3*1 ./ /4* &4/.2*(7(*7&(*1 ,/(,!>2. A2*4 .2*5 &>(**./ & .(*&.5 .2&. .2* -/4,;!-. ,/(*;*4 &41 .2* 7;041*(*1 .(*&30(*3 <* 1*-!1*1 <5 & 10*; <*.A**4 &(!3 &41 *4*;&03 &(!3 !3 /=*(-/6* !4 .2* 10*; &41 !3 /4;5 (*3-0*1 ,(/6 1*&.2 <5 .2* !4.*(=*4./ / 72(/1!.* f!!g 2*4 >&6*64/4 7(*33*3 ,/(.2* ,0;,!;F 6*4./ / .2* .(*&.5 .2* (/K&4 &41&(03 <(*&D3 .2* 7*&-* <5 32//.!4> &4 &((/A &. *4*;&03 &41 .2* ,!(3. /7*4 *4>&>*6*4. !4 .2* A&(<*>!43 f!=g !4 A2!-2 041*(.2* 7(/.*-./4 / .2* 4*!/6*1* 7*(,/(63 6!(&-;*3 / <(&=*(5 &41 A/0413 *=*4 72(/1!.* &41 (*3 f=g !/6*1* &41 .2* G 5-!&4 ;&0-03 &(* /4 .2* 7/!4./,!>2.!4> A2*4 .2*5 (*-/>4!3* /4* &4/.2*(&3 2*(F 1!.&(5 >0*3.",(!*413 *-./(>/*3 ,(/6 .2* <&..;* ./ (/5 &41 .2* 1&5 *413 A!.2 &4 !41*-!3!=* 10*; <*.A**4 *-./(&41 K&O 3/4 /, *;&6/4 4 .2* &(6!3.!-* *430!4> </.2 3!1*3 <0(5 .2*!(1*&1 &41 .2* (**D3 &-.!4> /4 .2* &1=!-* /, *3./(30!((/041 .2* -&67 A!.2 & A&;; &41 .(*4-2 f=!!g 2*4 .2* ,!>2.!4> <*>!43 &,(*32 L*03 ,/(<!13 .2* >/13 ./ .&D* 7&(. !4 !. &41 /(1&!43 .2&. .2* <&..;* 32&;; .*(6!4&.* A!.2 .2* 1!3-/6,!.0(* / .2* (**D3 f=!!!g 4 .2* ,/;;/A!4> 4!>2. >&6*64/4 &;(*&15 <*>!43 ./ 6*1!F .&.* ,;!>2. <0. *3./(&1=!3*3 (*-/4-!;!&.!/4 A!.2 -2!;;*3 2* *,,/(.3 / .2* &6<&3F 3&1/(3 &(* 2/A*=*(,(0!.;*33 f!Og *(*F 07/4 1533*03 &41 !/6*1* >/ /0. ./ (*-/44/!.(* -&7.0(* ;/4 & (/K&4 375 &41 30(7(!3* 2*303 D!4> / .2* 2(&-!&43 .2* 4*A;5 &((!=*1 &;;5 / .2* *4*65 fOg 4 .2* 30--**1!4> 1&5 >&F 6*64/43 <(&=*(5 1(!=*3 .2* (/K&43 <&-D ./ .2* A&;;3 / .2* ./A4" <0. 2* 2!63*;, !/6*1* 153 3*03 &41 /.2*(2*(/*3 ;*&=* .2* <&..;* A/041*1 .2* (**D3 (*.!(* <*2!41 .2* -&67 A&;;3 f0!g ./ &..&-D" A2!-2 .2* (/K&43 3*. /0. !4 ,!=* 1*.&-26*4.3 2* /77/3!.!/4 / .2* (**D3 !3 <(&=*" <0. *-./(<(*&D3 .2* (/0>2 >&.* A!.2 & (/-D &41 .2* 3.(*&6 / ,* *4*6!*3 7/0(3 !.3*;, 04F !67*1*1 !4./.2* -&67 fO!!g 4-* 6/(* .2* (**D 2*(/*3 A2/ &(* 3.!;;-&7&<;* / ,.&D!4> 7&(. !4 .2* ,!>2. *37*-!&;;5 .2* .A/ K&O*3 &41 1<6 4*03 30--**1 A!.2 .2* 2*;7 / 13*!1/4 !4 (*7*;;!4> .2* (/K&43 A2!;* *;&6/4!&4 K&O'1&32*3 *-./(./.2*>(/041 A!.2 & 3./4** <0. .2* ;&..*(3/4 (*&77*&(3 /4 .2* <&..;*,!*;1 A!.2 ,(*32 3.(*4>.2 >(&4.*1 2!6 <5 7/;;/ &. .2* -/66&41 / L*03 fO!!!g /3*!1/4 !3 /<;!>*1 ./ ;*&=* .2* (**D3 ./ .2*!(,&.* .2*5 (*.!(* &>&!4 ./ .2* 32!73 A2!-2 K&O !4 =&!4 1*,*413 fO=g 2* ,/(*6/3.32!7 !3 &;(*&15<0(4!4> A2*4 -2!;;*3 >!=*3 A&5 ./ .2* *4.(*&.!*3

3*:0*4.;5 3*.3 /0. /4 !.3 K/0(4*5 !4 .A/* 7&(.3 4;5 *3./(!/6*1* */7./;*6 03 2!;/-.*.*3 &41 1 6*4*03 (*&-2 2/6*! !2 3&,*.5" A2!;* *4*;&03 &41 1533*03 2&=*! ,!(3.'/041*(>! A&41*(!4>3 ,/(6&45&;/4> 5*3.,* *&.2 /=*(.&D*3 .2* /-(!&4 K&O /4 .2* 3*&* &41 >&6*64/4!6 6*1!&.*;5 &,.*(2!3 &((!=&;2/6*

](17.*46 8 (/ /" 2? (**D .*(6 ,/(&6/406*4.*/, =!-./(5 -/67/3*1 /, .2* &(63 -&7.0(*1 &3 </!.5 &41 3*.' 07 /4 .2* 37/. A2*(* .2* -/4:0*(*1 *4*65 2&1 .0(4*1 ./ ,;!>2. *7(*3*4.&.!/43 /, .2* 3.067 /, &.(** A!.2 -(/33"7!*-*3 &41 &(6/0(/(A*&7/43 3037*41*1 ,(/6 .2*6 &(* /,.*4 ./ <* 3** /4 -/!43& -0.9 2* /6&43</((/A*1.2* -03./6 ,(/6 .2* (**D3 <0. >*4*(&;;5 *(*-.*1 &3 6*6/(!&;3 /, =!-./(57*(F 8 /*/.!B -/!4 9 6&4*4. 6/406*4.3 A!.2 (*7(*3*4.&.!/43 /, .2* A&(-&(=*1 !4 (*;!*, &41 A!.2 ./72!*3 /, &(63 3037*41*1 /=*(.2* 041*-/(&.*1 7/(.!/43 (172/4!03 &41 >B6 1*3 /43 /, (>,403 /, (-2 6,/03 ;*>*41&(5 2*(/*3 /,&(-2!.*-.0(* &45!67/(.&4.<0!;1!4>3 A*(* &..(!<0.*1 ./ .2*6 &6/4>/.2*(3 .2* .*67;* /, 7/;;/&. *;72! f /6*(!- 56.. ./ 7/;;/ $$R .(&</ 7 C@$ &0 &4!&3 O V $ g .2&. /, 3*!1/4 &. &4.;4*!& f &43 =!!! $N @g .2* (/, ;-6*4 !4 2*<*3 f.J !O $$ $g .2* .(*&30(!*3 /, 0>*&3 !4 ;!3 f -2/!.& ./ (!3./72&4*3 > (VNRg &41 KB(;*03 !4 /*/.!&4 5(!& f &43 !O U Cg 4 .2* ;&3.'4&6*1 .2*5 !43*(.*1 /4* 3./4* 3/ -;*=*(;5 .2&. !.' -/0;1 <* *&3!;5 (*6/=*1 ,(/6 .2* /0.3!1* &41 .2* .(*&30(* 3./;*4 <5 4!>2. 0./4 /4* /--&F 3!/4 A2*4 >&6*1*3 A&3 -&0>2. !4 .2* .(&7 ;&!1 <5 5(!*03 ./ 1!3-/=*(.2* .2!*, (/72/4!03 ./ 3&=* 2!63*;, (/6 <*!4> <*.(&5*1 &3 2!3 <(/.2*(3 &--/67;!-* -0. /,, .2* 2*&1 /, >&6*1*3 *!4> 70(30*1 2/A*=*(<5 .2* D!4> 2* &3 3A&;;/A*1 07 !4 .2* *&(.2 &. * 1*& &41 <5 .2* -/6F 6&41 /, 7/;;/ &-0;. &41 &4 /(&-;* A*(* 1*1!-&.*1 ./ 2!6 &3 L*03 (/72/4!03 2* /(&-;* A&3 3!.0&.*1 !4 &30<.*((&4*&4 -2&6<*(!4./ A2!-2 &,.*(=&(!/03 7(*7&(&F ./(5(!.*3 !4-;01!4>.2* 4/-.0(4&;3&-(!,!-* /, &(&6 &41 .2* !4=/-&.!/4 /, >&6*1*3 .2* !4:0!(*(3 1*3-*41*1 ./ (*-*!=* 041*(-!(F -063.&4-*3 /,&6K,3.*(!/03 4&.0(* &=&(!*.5 /,(*=*;&.!/43 A2!-2 A*(* &,.*(A&(13 .&D*4 1/A4 ,(/6 .2*!(;!73 &41 10;5 !4.*(7(*.*1 2* 1*3-*4. !4./ .2* -&=* &41 .2* 3!>2.3 A2!-2 .2*(* 6*. .2* *5* A*(* 3/ &A*F !437!(!4> .2&. .2* 7/70;&(<*;!*, A&3 .2&. 4/ /4* A2/ =!3!.*1 .2* -&=* *=*(36!;*1 &>&!4 f .2*43*03 ?$C !-7 (!3./72&4*3 > VNRg &41 !. A&3 7(/=*(<!&;;5 3&!1 /,7*(3/43 /,>(&=* &41 3*(!/03 &37*-. .2&. .2*5 2&1 <**4 !4 .2* -&=* /, (/72/4!03 --/(1!4>./ &4/.2*(3./(5 .2* <(/.2*(3 &,.*(.2* -/67;*.!/4 /, .2* *;72!-.*67;* &3D*1 7/;;/ ,/(&"(*A&(1 &41 2* 7(/F 6!3*1 .2*5 32/0;1 2&=* 4.2* 3*=*4.2 1&5 .2* <*3. .2!4>.2&. -/0;1 <* >!=*4 ./ 6&4 &41 /4 .2&. 1&5 .2*5 </.2 1!*1 & 7*&-*,0; 1*&.2 f !-*(/ + 5 !$$C ;0.&(-2 $ " " $Cg N /4 /, (!-2.2 4!03 ,&.2*(/, ;03 ,/041*(/, (/5 &41 /, 33&(-03 &41 &456*1*3 &$ ((.;& & D!41 /, ;&1;* & 1 (K,72;11 (03 (**D *7!-' A(!.*(/, >57. A2/ -/67/3*1 &. .2* <*>!44!4>3 /, .2* ?.2 -*4.0(5 &$ " !4 ? ;2*0&6*.*(3 &=*(5!41!,,*(*4.7/*6 ,!<& 2* &.!4 4&6* ,/(&3.(&!>2. A!41"!43.(06*4./, 1**7 -;&4>/(/03 3/=61 A2!-2 A&3 03*1 &. 3&-(!,!-*3 >&6*3 &41

,04*(&;3 &41 !4 A&(&6/4> .2* !4,&4.(5./ >!=* .2* 3!>4&;,/(&..&-D &41 (*.(*&. &41 A&3 <;/A4 <5 .2* .0<!- 4& -0.9 8 K7 I .;<!;03.(!06 ,*3.!=&; !4 2/4/0(/, &(3 & $ 0;;!03 !-!&./ &41 6/ ,!4!-1 &; " >&(6*4. ,/(6*4 &41 A/6*4 A/(4 4*0. 2* 7*(3/4 !.2 6*4 !. A&3 &;//3* 32!(./, A//;;*4 3.0,, -/43!3.F !4> /, 7!*-*3 3*A4 ./>*.2*(&. .2* 3!1*3 &41 2&=!4> *!.2*(4/ 3;**=*3 /(/4;5 32/(. /4*3 (*&-2!4> 2&;, A&5 1/A4 .2* &(6 /4>*(3;**=*3 A*(* -/43!1*(*1 *,,*6!4&.* &41 ,!(3 -&6* !4./ >*4*(&; 03* !4 .2* (1 &41 C.2 7*4.0(!*3 (1!4&(!;5 .2* " A&3 >!(1*1 07 /=*(.2* 2!7 &41 (*&-2*1 ./ .2* D4**3 /4;5 . A&3 -/F 3!1*(*1 04<*-/6!4> ./ &;;/A !. ./ &77*&(<*4*&.2 .2* ;/A*(7&(./, .2* 1 . A&3

A/(4 <5 .2 /6&4 &. 2/6 &41 !& A/(D &41 &;3/ 25 3;&=*3 &41 3.(&4>*(3 *4&./(3 &41 7&.(!-!&43 A*(1!3.!4>0!32*1 <5 &
" A!.2 &<(/&1 70(7;* 3.(!7 # B 2*4-* " *0.*41!4> ,(/6 .2 4*-D ./ .2 041*(3*&6" .2 D4!>2.3 <5 &4&((/A/4*& "1 2*4-* " "1 2 70(7;* " &1/(4*1 A!.2 >/;1*4 7&;6"<(&4-2*3 & " $ A&3 A!.2 .2 1 & .2 1(*33 /,& >*4*(&; /4 .2 /--&3!/4 /,& (& .=*(5 *&(;5 <*-&6* .2 -03./6 ./ A*&(<*4*&.2 .2 .04!-7(/7*(& " " A2!-2 A&3 /, A//; !4*4 32!(.3 1!1 4/.-/6* !4./ 03* 04.!;.2 C.2 -*4.0(5 /6*4&;3/ A/(* &1/0<;* .04!- &4 041*(/4* -/43!3.F !4>/,& >&(6*4.,!..!4>-;/3*;5 ./.2 <//15 441 (*&-2!4>/=*(.2 D4** &41 /=*(.2!3 .2 &
4(6& 30<"1!=!3!/4 /, .2 /6&4 %-&=&;(5 2 NN D4!>2.3 /(!>!4&;;5 <*F ;/4>!4> ./ *&-2 ;*>!/4 A*(1!=!1*1 !4./ $N B /, N 6*4 *&-2 /, .2*3 2&1 R "! .2 ,!(3./, A2/6 -/6 6&41*1 .2 A2/;* &41 8&1K0.&4.39 G 2 1!=!3!/43 /, &;;!*1 -&=&;(5 -&;*1 & *&-2 -/43!3.!4>/, NN 6*4 -/4F .&!4*1 V /, ?N 6*4 *&-2 41*(.2 6 7!(.2 !41*7*41*4. 1!=!3!/43 /, G-&=&;(5 /, VNN /($N]9 6*4 %A2!-2 A*("&;3 -&;;*1 -/43!3.*1 /, $?/(@C 2 -&=&;(5 1!=!3!/43 /, $@N 2/(3*6*4 !4 &4/2/(./, VNN 3.(/4> A2!-2 ,/(6*1 .2 04!. !4 6&45 -/2/(.3 &41 /, @CN 2*(3*6*4 !4 &G-/2/(./, $NNN 3.(/4> A*(1! !1*1 !4./ ?"&41 $N (*37*-.!=*;5 & " 0(443 /4 /, &0403 &41 4!;;& <(/.2*(/, 0.0(4& & D!4> /, .2 0.0;!&43 &. (1?& *A&3 !410-*1 <5 "6&.& .2 3!3.*(/, 2!3 6/.2*(>&41 A!,* %/; >(.!403 ./ 6&D* A&(07/4 !4*&3 ,/(2!3 <(!1* &=!4!& A2/ 2&1 &;(*&15 <**4 <*.(/.2*1 ./ 2!63*;, ,.*(6&45 2&(1 ",!>2.3 2 A&3 3;&!4 !4 3!4>;* -/6<&.<5 2!3 (!=&;
4(7!;;43 & - /6&4 A(!.*(%/; -/6*1!*3 & 5/04>*(-/4.*67/(&(5 /, 8 *(*4-* * 1!*1 &. !40*33& !4 $N 6 * /4;5 7/33*33 3/6* /, .2 .!.;*3 &41 & ,*A ,(&>6*4.3 /,2!3 7;&53 * A&3 .2 ;&3.!6F 7/(.&4.A(!.*(/, .2 & 4.*;& .2 /, -* /, >0&(1!&4 &6/4> .2 - & .& &,,*-.*1 4/. /4;5 6!4/(3 <0. &;3/ A!1/A3 &41 >(/A4 07 1&0>2.*(3 07 ./ .2 .!6* /, .2*!(6&((!&>* A!.2 .2 %*0-*7.!/4 /, .2 *3.&;3 4 .2 -&3* /, /(!/(1!4&(5 404/(3 .2 >0&(1!&4 & 6&4&>*1 .2*!(7(/7*(.5 04.!; .2 .!6* /, .2*!(6&K/(!.5 A2!-2 A!.2 >!(;3 <*>&4 &. .A*;=* A!.2 </53 &. ,/0(.** . .2!3 &>* .2 >0&(1!&432!7 1*.*(6!4*1 &41 >!(;3 <*-&6* ;!D* A!1/A3 7/33*33*1 /, !41*7*41*4. 7/A*(/=*(.2*!(7(/7*(.5 <0. 3.!;; (*6&!4*1 3/ ,&(041*(>0&(1!&432!7 .2&. .2*5 A*(* !6&<;* ./ ".&D* ;*>&; 7(/-**1!4>3 A!.2/0. .2 -/43*4. /, .2*!(>0&(1!&43
2(* D!413 /, 2&=* <**4 1!3 .!4>0!32*1 8$9 " A2/ A&3 4&6*1 !4 .2 A!;; 5 &7(/=!3!/4 !4 .2 A!;; A/6*4 A*(* 3/6*.!6*3 &;;/A*1 .2 -2/!-* /, .2*!(>0&(1!&4 A2/ A&3 .2*4 -&;;*1 8H -2/3*4 >0&(1!&4 I9 ./ 1!3.!4>0!32 2!6 ,(/6 .2 ,.. = 8/(H 37*-!,!*1 >0&(1!&4 I9 , 4/ >0&(1!&4 A&3 4&6*1 !4 .2 A!;; /(.2 >0&(1!&4 4&6*1 1*-;!4*1 .2 /,,!-* /(30<3*:0*4.;5 (*3!>4*1 !. .2 4*0. /, D!4 3.*77*1 !4 &3 8@9 1 4 .2 -&3 /, &A1/A .2!3 A&3 .2 3/4 !, /, &>* /(.2 203<&41 3 <(/.2*(&41 3/ /4 4 .2 -&3 /, &1&0>2F .*(.2 <(/.2*(!, /, &>* .2 04-; /4 .2 ,&.2*(3 3!1 &41 3/ /4 6/4> .2 7&.(!" %!&43 !, .2*(A*(4/ D!436*4 .2 1 041*(.*/D .2 10.!*3 8 9 , .2*(A*(4*!.2*(& " 4/(& 1 .2*4 .2 7(&*./(&77/!4.*1 & " 3/ -&;;*1 <*-&03 .2 - 8&</0. $RR 9 2&1 !4.(/10-*1 .2!3 D!41 /, >0&(1!&43 A*(4&6*1 <5 .2 -/430;3 ,(/6 .2 .!6* /, &(-03 0(*;!03 <5 & (*>0;&(/6*4 2&=!4> .2(** -2!;1(*4 A*(*0*67.*1 ,(/6 &;; >0&(1!&4F 32!7 <5 0>03.03 2*4 ;&01!03 &</F ;!32*1 >0&(1!&432!7 /4 .2 7&(. /, .2 1" !4 .2 -&3 /, &;; A/6*4 !/-;*F .!&4 *0.*41*1 .2!3 &</;!./4 ./ .2 -&3

!4K03.!-* 5 .2!3 /&.2 .2*5 30<3*:0*4.;5 ,/041 .2* 63*;=*3 </041 ./ .2* *07*1!.!/4 &>&!43. (/5 3 2* 2&1 /4 /4* /--&3!/4 ,/(>/..*4 ./ 3&-(!,!-* ./ 72(1 .* 32* .0(4*1 2!3 1&0>2.*(3 !4./ &10;.*(*33*3 4 .2* 1*&.2 /, 2!3 & 2* 30((*41*(*1 ./ 2!3 3/4"!4";&A 4*;&03 .2* .2(/4* /, 7&(.& A2*(* 2* A&3 <0(!*1 &41 2!3 ./6< 7/!4.*1 /0. ./ .(&=*;;*1

541J(!13 f 7&.(/456!- ,/(6*1 ,(/6 541,**3 g 2* -2!;1(*4 /, 541&(*/3 *37*-!&;;5 .2* !/3-0(!#

B2/B3#+: ("! --/(1!4>./ *3!/1 W+(1 R? g .2* 5/04>*3. 3/4 /, &*& <5 &(.&(03" & >!&4. /, *4/6/03 3.(*4>.2 A!.2/4* 2041(*1 34&D*"2*&13 *5*3 1&(.!4> ,!(* &41 =&(!/03 =/!-*3 A2!-2 3/6*.!6*3 3/041*1 ;!D* .2* =/!-* /, .2* >/13 3/6*F .!6*3 ;!D* .2* ;/A!4> /, & <0;; /(.2* (/&(F !4> /, & ;!/4 /(;!D* .2* 2/A; /, & 1/> &41 3/6*.!6*3 ;!D* & 32(!:; A2!3.;* *A&3 .2* 356</:; /, .2* ,!(* &41 36/D* !4 .2* !4.*(!/(/, .2* *&(.2 &41 /, .2*!(1*3.(0-.!=* ,/(-*3 *4-* 2* .=&3 &;3/ .2* ,&.2*(/, 1*=&3.&.!4> 20((!-&4*3 5 -2!14& 2* A&3 .2* ,&.2*(/, .2* 1/>3 (.2 3 &41 *(< (03 &41 .2* *6**&4 251(& f.2* 2;63*(& .2* ;!/4 /, *6 & .2* *&>;* /, (/6*.2*03 &41 .2* 1!B/4 /, .2* *371(;1*3 * -/4.*41*1 A!.2 L*03 ,/(.2* .2(/4* /, .2* /A*(A/(;1 <0. &,.*(3/6* 3*=*(* ,!>2.!4> A&3 20(;*1 ./ .2* >(/041 <5 ;!>2.4!4> &41 .2(/A4 !4./ &(.&(03 4 /6*(2* ;!*3 <*4*&.2 .2* *&(.2 !4 .2* ;&41 /, .2* (;6! Wdd !!$R g &41 L*03 &33&!;3 .2&. (*>!/4 A!.2 2!3 .2041*(</;.3 --/(1!4> ./ &4/.2*(&--/04. ,,;.4& A&3 20(;*1 07/4 2!6 &01 /0. /, !. 2* 3*413 ,/(.2 3.(*&63 /, ;,&6* fB3-25;03 , (UN " + (CT g *A&3 &,.*(A&(13 !1*4.!,!*1 A!.2 .2* >57.!&4 >/1 .2* >/1 /, .2* /, 1*&.2 /, <;!>2.B /, .2* *-;!73* /, 304 &41 6//4 &41 /, .2* <&((*4 3*& .2* &0.2/(/, &;;* =!; &41 .2* 60(1*(*(/, 2!3 <(/.2*(3!(;3 #

5(&4.8 ("" 2* A/(1 : "2 " /(!>!4&;;5 6*&4.4/6/(* .2&4 &(0;*(&41 &((!*1 4/ &33/-!&.!/4 /, <;&6*<0. A&3 03*1 30<3*:0*4.;5 !4 .2* 37*-!&; 3*43* /, &(0;*(A2/ *0*(-!3*3 04-/43.!.0.!/4&; !((*F 37/43!<;* &41 &<3/;0.* 7/A*(0-2 .5(&4F 4!*3 &(/3* 6/3. -/66/4;5 !4 .2* U.2 &41 ?.2 -*4.0(!*3 %!4 /;!>&(-2!-&; 3.&.*3 !4 3.&.*3 >/=*(4*1 !4 .2* !4.*(*3.3 /, .2*!(7&(.5 <5 &4 &(!3./-(&.!-&; 6!4/(!.5 *4 /, -/0(&>* &41 &<!;!.5 4/. 04,(*:0*4.;5 .2*63*;=*3 6*6<*(3 /, .2* &(!3./-(&-5 &=&!;*1 .2*63*;=*3 /, .2*1!3-/4.*4. /, .2* 7*/7;* !4 /(1*(./ A!4 7/70;&(!.5 &41 .2*4 A!.2 .2*!(2*;7 /=*(.4(*A .4* *0!3.!4> &0.2/(!.5 &41 7/33*33*1 .2*63*;=*3 /, .2* >/=*(46*4. /(.2!3 70(7/3* 6&45 03*1 .2* /,,!-!&; 7/A*(3 -/43.!.0.!/4&;;5 1*;*F >&.*1 ./ .2*6 2* .5(&4.3 *0*(-!3*1 .2*!(&0.2/(!.5 6/3.;5 !4 .2*!(/A4 !4.*(*3.3 &41 A2*4 .2*5 1!1 4/. 6!303* !. .2* 7*/7;* /4 .2* A2/;* ,&(*1 <*..*(!61*(.2* 4*A (0;* .2&4 041*(.2* /;1 A2!;* !.&;3/ 3*(=*1 ./ (*6/=* *0!3.!4> &4/6&;!*3 &41 ./ 6&D* (//6 ,/(,(*32 1*=*;/76*4.3 &45/, .2* .5(&4.3 /, .2!3 .!6* 2&=* *&(4*1 &2!>2 (*70.&.!/4 ,/(.2*63*;=*3 7&(.;5 <5 .2* *0.*43!/4 /, .2*!(7/A*(&<(/&1 &41 7&(.;5 <5 .2* !6F 7*.03 .2*5 >&=* ./ .(&1* 7&(.;5 <5 .2* !6F &41 &(-2!.*-.0(* &41 <5 .2* *4-/0(&>*F 6*4. /, &(. *=*(.2*;*33 .2* 154&3.!*3 /, .5(&4.3 !4 .2!3 7*(!/1 A*(* 3*;1/6 /, ;/4> 10(&.!/4 2*5 >*4*(&;;5 ,/(6*1 .2* .(&43!.!/4 ,(/6 &(!3./-(&.!-/;!>&(-2!*3 ./ 1*6/-(&-!*3 41*(.2!3 ;&3. ,/(6 /, -/4F 3.!.0.!/4 !. A&3 ;*33 .2* &-.0&; !43.&4-*3 /, 6!3-/410-. /4 .2* 7&(. /, .5(&4.3 .2&4 1!3F ;!D* ./ 6/4&(-23 !4 >*4*(&; .2&. ;*1 6*4 ./ &3B-!&.* A!.2 .2* 4&6* /, &(.5(&4. .2* !1*& /, &-(0*; &41 &(<!.(&(5 (0;*(2*4 .2* 1*6/-(&-!*3 2&1 (*&-2*1 .2*!(,0(.2*3. ;!6!. .5(&44!*3 A*(* 1*=*;/7*1 ,/6 .2*6 &3 !4 *&(;!*(1&53 .2!5 2*5 2&1 <**4 1*=*;/7*1 ,/6/;!>&(-2!*3 <0. 04;!D* .2/3* /, *&(;!*(1&53 .2!3 1*=*;/76*4. A&3 4/. 7(/>(*33 <0. /4;5 & >*4*(&; 1!33/;0./!4 &41 1*.*(!/F (&./!4 0-2 .5(&44!*3 3/ ,&(,(/6 A/(DF !4> &45 >//1 ,(.2* .&.* 3*(=*1 6*(*;5 ./ 7(/6/.* .2* 7;*&30(*3 &41 !4.*(*3.3 /, !((*37/43!<;* (0;*(3 &41 .2*!(6!4!3.*(3 W$ (!3./.;* , !=* $N" = -2&73 V ? $@ g

5(/ &0>2.*(?, &;6/4*03 <5 /3*!1/4 6/.2*(/, *;*03 # &41 /, 7>;;& &41 <5 (`.2*03 6/.2*(/, 3/4

5(..*03 -*;*<(&.*1 (**D *;*>!&-7/*./, .2* U.2 -*4.0(5 % 3/4 /, (-2*6<(.03 </(4 *!.2*(&. .2*43 /(&. 72!14&!4 ..!-& * .(&437;&4.*1 .2* /4!&4*;*>5./ /(!&4 7&(.& --/(1!4> ./ .2* /(1!4&(5 3./(5 .2* 7&(.&43 <*!4B 2&(1 7(*33*1 !4 .2*3*-/41 * 3*4!&4 &(.2*&1=!-* /, .2* *;72!-/(&-;* &3D*1 .2* .2*4!&43 /(& >*4*(&; &41 .2*5 3*4. .2*6 .2* ;&6* 5(.3*03 5 .2* 7/A*(/, 2!3 7/*.(5 2* 2*&;*1 .2* 1!=!3!/43 &6/4> .2* 7&(.&43 &41 /03*1 .2*6 ./ 30-2 <(&=*(5 .2&. .2*5 A/4 .2* =!-./(5 !3 7/*63 3./1 !4 2!>2* 3.** 6 &. 7&(.& &41 3*(=*1 &3 & 6*&43 /, *10-&.!/4 /(.2* 5/0.2 4 .2* ,!*;1 .2*5 A*(* (*&1 &. *=*4!4> &,.*(3077*(*3!1*3 ,(&>6*4.3 /, &4 *;*>5 *4.!.;*1 9 " # @ "

:' ' /,' A -2' 2*' 70.' &4' * ' ./' .2*' 1!=!3!/43' 30<3!3.!4>' &6/4>' .2*' 7&(.&43' &41' &4' &4&7&*3.!-' (' A*' 7/33*33' .2(**' -/67;*.*' 37*-!6*43' /,' 2!3' A&(' Z/4>3'-&;;*1' : (' /(' -(" '!4' A2!-2' 2*' *4-/0(&>*3' 5/04>' 6*4'./' .&D*' ./' 2*&(.' .2*' 10.5' &41' 2/4/0(' /,'-/0(&>*' 2*!(' .2*6*3' &(*' 3!4>0;&(;5' 3!67;*' &41' 7&.2*.!-' &41' .2*5' &(*' &6/4>' .2*' 6/3.'<*&0.!,0;'(*6&!43' /,'&4-!*4.'7/*.(5

Q*.Q*3'# "" ' ' (**D'>(&66&(!&4' &41' 7/*.'/,' .2*' 3*-/41' 2&;',/,' .2*' $@.2' *4.0(5' ' *' ;!=*1' !4' /43.&4.!4/7;*' &41' .2/0>2' ,/(' 2!3' .!6*' 2*' 6&5'<*'-&;;*1' ;*&(4*1'2*'A&3'&'6 3.'-/4-*!.*1'&41'307*(F ,!-!&;'7*(3/4&>*' &3'!3'&67;5'7(/=*1' <5' 2!3' 406*(/03'A(!.!4>3' *3!1*3'-/66*4.&(!*3' /4' /6*(' *3!/1' (!3. 42&4*3' =-<72(/4 &41' /.2*(' A(!.*(3' A2!-2' &(*' =&;0&<;*' ,/(' .2*'&0.2/(!.!*3':0/.*1'!4'.2*6'2*'-/67/3*1' !4'$??V A(*.-2*1'2*0&6*.*(3'&4'*7!-'7/*6' *4.!.;*1' ' -/4.&!4!4>' .2*' ;*>*41' /,' (/5',(/6'.2*'<!(.2'/,' &(!3'.!;;'.2*'/7*4!4>' /,' .2*' ' .2*' !4-!1*4.3' /,' .2*' ' ' !4' 1*.&!;' &41' .2*',0(.2*(' -/0(3*' /,' .2*' A&('07' ./' .2*' (*.0(4' /,' .2*' (**D3' *3!1*3' .2!3' 2*' A(/.*' &' (' (/,' $@??$' d'7/;!.!-&;'=*(3*3 I' 2*3*'&(*-/6 6/4;5'<0.' A(/4>;5'-&;;*1' (',(/6' &4' &(<!.(&(5' 1!=!3!/4' /,' .2*' A/(D' !4./' <//D3' /,' $N8 ' ;!4*3'*&-2' *' !3' &;3/'.2*' &0.2/(' /,' &' -/;F ;*-.!/4' /,' 3./(!*3' 7&(.;5' 65.2!-&;' 7&(.;5' 2!3./(!-&;' A/(.2;*33' !4' .2*63*;=*3' <0.' &;0&<;*' &3' !4-;01!4>'406*(/03' !.*63' /,' !4,/(6&.! 4' A2!-2' A/0;1' /.2*(A!3*' 2&=*' <**4'04D4/A4'./' 03

6!0*3' ' 5 *) ' 67,&003'&5 ' *0.'./' 7!4!&403' .2*' 6/3.'-*;*<(&.*1'&6/4>' /6&4'K0(!3.3' *' A&3'</(4'&.' 5(*' &</0.'$UN' ' *' <*>&4'2!3'-&(**(' !4' /6*' 041*(' *7.!6!03' =*(03' &3' &33*33/(' /,' &7!4!&403*' &41' 041*(' ;&>&<&;03'&41' ;*0&41*(' =*(03' A2/3*'7(*-*7./(' &41'>0&(1!&4'2*'2&1'<**4' /,!;;*1' .2*' /,,!-*' /,' &' ' " ' 0(!4>'2!3'.*40(*' /,' .2!3' /, -*'2*'A&3'60(F 1*(*1'8@@R'<*,/(*' .2*'*5*3' /,' .2*' *67*(/(' <5'.2*'7(&*./(!&43'A2/6'2*'2&1'*0&37*(&.*1' <5'.2*'3.(!-.4*33' /,' 2!3'1!3-!7;!4*' !3'.A/' -2!*,'A/(D3' /4'.2*'7(&*./(!&4';&A' '9 2' ' !4' R ' </!D3' &41' /4'.2*' -!=!;' ;&A' '# ' " ' !4' V$' </!D3' A*(*' 2*;1' !4' 2!>2' *3.**6' &41',/(6*1'.2*' ,/061&.!/4' /,' .2*' &41*-.3' /,' 03.!4!&43' $ ' ' ' .2!3'7/(.!/4'.2*' *0.(&-.3',(/6' 2!3'A(!.!4>3' ,/(6' &,0;;' .2!(1' *3!1*3'.2*3*' *0-*(7.3' A*' 2&=*' &' 36&;;' 7&(.' /,' 2!3' 7 1 ' ; ! ' "1 ' &41' /,' 2!3' ' " ' ' 5 *)

6<(&-.!;46' # ' ' 304"32&1*' # ' " (,.4!&' 8$9' 7!.2*.'/,' 72(1!.*' # 8@9' 2*' 03*' /,' &3.(/4/65' # ' 0 8R9' ' (**D'>&6*'&.' (' 8 (&403'8;!.'2*&=*49' /4'&41'203<&41'/,' &*&'.2*' &(.2'A2/'</(*'./'2!6'.2*' !.&43' .2*' -; 7>3'&41' ?-&./4-2*!(3' *' 1!1' 4/.'&;;/A'.2*' -2!;1(*4'</(4'./'2!6'. ' 3**' .2*' ;!>2.' <0.'-/4-*&;*1'.2*6'!4'.2*' 1*7.23' /,' .2*'*&(.2' 4(&>*1'&.'.2!3' &*&'3.!((*1' 07' 2*(' -2!;1(*4'&>&!43.'2!6'&41' (403' .2*'5/04>*3.'/,' .2*' !.&43'046&44*1'2!6' A!.2'.2*'3!-D;*'A2!-2'2!3'6/.2*(' 2&1'>!=*4' ./' 2!6' (/6' .2*' <;//1n'.2&.' ,*;;' 07/4' .2*'*&(.2'A*(*'</6' .2*' (!4B 3' &41' .2*' !&4.3' 2*' 6*6<*(' A2!-2'A&3'-0.' /,,' ,*;;'!4./' .2*' 3*&'&41' /0.'/,' .2*',/&6'7(/F 10-*1'&(/041'!.' .2*(*-&6*' !4./'<*!4>' .2*' >/11*33' -&;;*1' 72(1.*' 82*4-*' -&;;*1' ((1 " '! * ',/&6"</(49 6&' ' /6&4' A&.*("=*33*;' # ' 1

D $ '$ %' >EH' = ' " '& /6&4' &44&;!3.' # ' 8@9' - ' & /6&4'2!3./(!&4' ,' 2!3'2,*'A*' D4/A'/4;5'.2&.'2*' &--/67&4!*1' .2*' 7(/-/430;' *0.03' /67*!03' ./' 3!&' !4' @U' ' 2' 2!3' (*.0(4'2*' -/67/3*1' <*.A**4' @T' &41' @' ' &' -/;;*-.!/4' /,' 2!3./(!-&;'&4*-1/.*3!4'4!4*'</!D3'9 ' 5 ' ; (' ; ' A2!-2' 2*' 1*1!-&.*1'./'.2*'*67*(/(' !<*(!03' 2* </!D'-/43!3.3'/,' &4'04-(!.!-&;' -/;;*-.!/4' /,' *0.(&-.3'.&D*4'6/3.;5',(/6' !=5'&41' !-*(/' <0.'&;3/',(/6' &;;03.'&41' /67*!03' (/>03' 2*3*'&(*1!=!1*1'!4./'1/6*3.!-'&41',/(*!>4' !43.&4-*3'041*(' 1!,,*(*4.'2*&1!4>3'6/3.;5' 1*3-(!7.!=*' /,' 6/(&;' :0&;!.!*3' 2*' 3.5;*' !3' <&1' &41' ,0;;' /,' 1*-;&6&./(5' </6<&3.' .2*'-2&(&-.*(/,'.2*'-/67!;*(' (*=*&;3' !.3*;,' !4' &<K*-.',;&..*(5' /,' !<*(!03' *=*(.2*F ;*33' /A!4>'./'.2*'-/4=*4!*4.'3*;*-.!/4' /,

&4*-1/.*3' A;!!/;!' .2*' </!D' /,,*(*1' ./' /(&./(3'
&&1' &0.2/(3' !.' A&3' 60-2' :0/.*1' !4' .2*'
30--**1!4>' >*4*(&.!/43' 1/A4' ./' .2*' !11;*'
>*3' .' 2.!3' -/6*' 1/A4' ./' 03' A!.2' .A/'
*7!./6*3'1(&A4'07' <5' .2*' &</=*"6*4.!/4*1' &(!3'
,(/6' .2*' ,!(3.' 7/(.!/4' /,' &' A/(D' /4' /6&4'
4&6*3' <5' &4' 04D4/A4' A(!.*(' A2/' :0/.*3'
/;1' &0.2/(!.!*3' /4' .2*' 30<K*-.' *37*-!&;;5'
&(((/
8 9' 6 ' = ' ' '
(" ' ' K&.!4'A(!.*(' /,'*7!-'=*(3*'</(4'
&.' *.!&' A2/' ,;/0(!32*1' 041*(' *37&3!&4'
&41' !.03'&41'1!*1'<*,/(*'TN' ' *' 2&=*'
&4' 04,!4!32*1'*7!-'<5'2!6'/4'.2*' *07*1!.!/4'
/,'.2*' (>/4&0.3'& 1 " " '!4'R'</!D3'
A2!-2' A&3'<*>04' &</0.' .2*' .!6*'/,' .2*'
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2&=*'<**4',/041'!4'6&45'7&(.3'/,'(**-*'
37-!&;;5'!4' 5-*4)'&41')>;4&'&3'A*;;'
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specimens are those discovered at Athens in the neighbourhood of the *Dĭpўlŏn* gate, from which this class of vases derives its ordinary name. The designs are executed in reddish brown, sometimes on the verge of black, on a reddish ground. They include meanders, chevrons, rosettes, together with oblique lines and concentric circles, often traced with considerable care; also animals, such as horses, stags, and birds, as well as human beings. The latter are arranged in zones, and drawn in a very rude and primitive manner, being merely rough silhouettes with slender waists, and with the thighs and chest disproportionately developed.

(1) * DIPYLON VASE.
(*Mon. d. Inst.* ix 40, 1.)

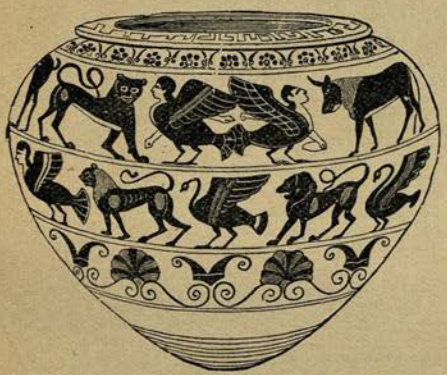
Among the scenes represented are warriors riding in chariots, figures marching in procession, and funeral ceremonies (fig. 1). There is no trace of oriental influence.

(6) Certain vases of *Mēlŏs*, ascribed to the 7th or 8th century B.C., form a small group with clear indications of an oriental character. Besides straight lines, that may be regarded as survivals from the earlier geometric style, they display zones of wild animals of an oriental type, and decorative subjects (such as chĭmæras confronting one another) derived from Asia. Meanwhile, the figures of divinities have assumed shapes approximating to the Hellenic type. These vases form a transition to the next group, being nearly contemporary with the earlier specimens of "Corinthian vases" (Conze, *Melische Thongefässe;* Baumeister, figs. 240, 2086).

(7) *Corinthian vases* is the usual designation of a variety of archaic vases first found in the district of Corinth, but since discovered in other parts of the Hellenic world, and even in Etruria, especially at Cære (Dennis, *Etruria*, i 282). The decoration is distinctly oriental. It includes rosettes borrowed from Assyrian art, as well as fantastic monsters, birds with human heads, flying creatures with wings curved backward, and other symbols that were intelligible to oriental nations, but had no special significance to the Greeks. It is characteristic of this group of vases that the figures are now arranged in *continuous friezes*. The ground is a yellowish white, and the design is sometimes dull, sometimes bright in colour, and is not unfrequently a deep black, touched up with purple or red. This group may be divided into: (*a*) Vases with zones of *animals*, such as lions, goats, tigers, and antelopes, either facing one another (as in the two confronted lions in the British Museum Vase, A 1), or marching in file, with their dark bodies relieved with touches of red, and with the muscular details indicated with the dry

point; the field is interspersed with rosettes (see figs. 2 and 3). (*b*) Vases with designs representing *human figures*, with mythological themes set amid zones of animals, and other varieties of oriental decoration. (*c*) Vases with *mythological* subjects bearing *inscriptions* in Corinthian characters ascribed to the earlier half of the 7th century B.C. The most remarkable specimen of this kind is the *Dodwell pyxis*,[1] now in

(2) * ARCHAIC GREEK VASES.
(Birch, *Ancient Pottery*, figs. 126, 127; the vase to the extreme left is in the British Museum.)



(3) * CORINTHIAN VASE, FROM VULCI.
Height, 8½ inches; greatest diameter, 11½ inches.
(Museum of Geology, Jermyn Street, C 30.)

the Pinakothek at Munich, with its body decorated with rows of oriental animals in black and red, and its lid adorned with a scene from the Calydonian Hunt, in which Agămemnōn and other heroes are distinguished by their names (Baumeister, fig. 2046). It is on such vases that we find the earliest signatures of the names of their artists; *viz.*, Chărēs on a *pyxis* resembling that just mentioned, and Tīmōnīdās on an elegantly shaped and carefully painted vase at Athens, representing Achilles lying in wait for Trōīlus (Baumeister, fig. 2100). At Athens the introduction of the "Corinthian" style of vase has been ascribed to the middle of the 7th century B.C. The transition is represented in a group of vases called *Phălērŏn ware*, first found on the road between Athens and the port of Phaleron (British Museum, *ib.* Cases 20, 21).

(8) The pottery of *Rhodes* (Baumeister, figs. 2083–5) reached its highest development about the time of the later Dipylon vases (*ib.* fig. 2072). The most celebrated specimen of Rhodian ware is the *pĭnax* or platter in the British Museum representing a combat between Mĕnĕlāus and Hectŏr over the wounded Euphorbus, with their names inscribed in archaic letters ascribed to the end of the 7th century. This is probably the earliest known vase bearing a Greek inscription. The design has some dramatic interest, though the painting (which is in brown and red ochres on a red ground) is but rudely executed (fig. 4). Platters of the same type have been found at Naucrătĭs in Egypt.

(II) *Vases with black figures.*

These were in vogue from about 540–460 B.C., not to mention later times, down to the 4th century, when they were reproduced in imitation of earlier work. They are painted in glossy *black* enamel on a *red*, slightly glazed, clay ground, or (less frequently) on a cream-white ground. The hands, arms, and faces of female figures are painted white (fig. 5), while red is used to define clearly all kinds of details, such as hair, crests of helmets, variegated patterns or borders in a garment. The faces are almost always in profile, and yet the eyes are shown front-wise—a method of treatment which survived even among vases of the next period. The countenance is destitute of expression, and uniform in type; and the figures stand out as silhouettes against the light. The designs are usually mythological, and mainly Dionysiac. Among many other subjects we have scenes from the Trojan war, the labours of Hērăclēs, and the legends of Attica, especially that of Thēseus. Some of the principal subdivisions are the following:

(1) Vases with *cream-white ground.* Of the few specimens of this kind the most remarkable is the *cўlix*[1] of Arcĕsīlās, king of Cўrēnē, in which the king is to be seen superintending the weighing out of a number of bales of *silphium*, the most valuable product of the country (Aristophanes, *Plutus*

[1] A *pyxis* is a perfume-box, with a rounded body, and a lid surmounted by a knob.

[1] A *cylix* is a flat, shallow, and very wide saucer, with two side handles and a tall stem or foot.

925). All the figures, which are painted in black touched up with red, and even the scales, which are similarly treated, have their names painted beside them (fig. 6).

(2) Vases in the style of (the potter) *Ergŏtīmus* and (the painter) *Clītĭās*. The two other zones running round the neck. The main subject is a procession of deities driving to the marriage of Pēleus and Thĕtĭs in a procession of seven *quadrīgæ* (of the type represented in the cut to article CHARIOT). The other subjects are the

(4) * RHODIAN PINAX.
(British Museum, Vase Room I, Table-Case D; A 268.)

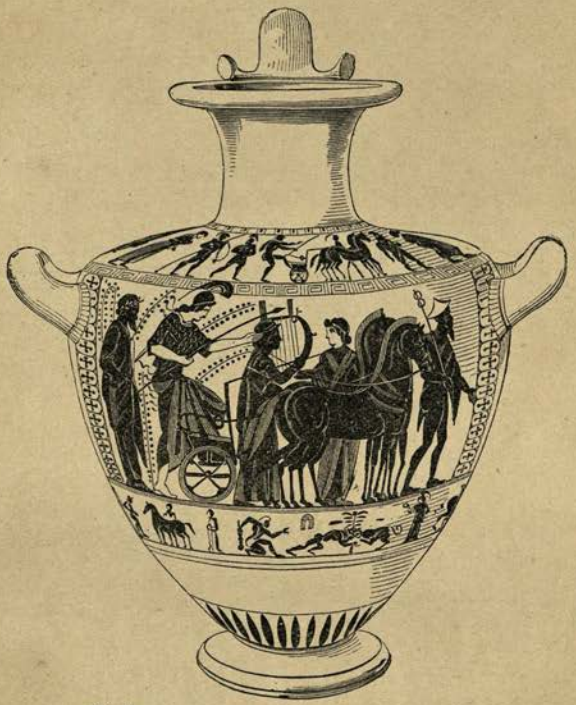
names of these artists are preserved on the François vase found at *Chiusi* (Clūsĭum), and now in the Florence Museum,—a magnificent *crātēr*,[1] with its body decorated with three zones of figures, and with funeral of Patroclus, Achilles pursuing Trōĭlus, the battle of the Lăpĭthæ and Centaurs, the Calydonian Hunt, Theseus and Ariadnē, etc. All these compositions are marked by a rare beauty, and evince a keen artistic feeling and a singular fertility of imagination. There are no less than 115

[1] A *crater* is a large vase for mixing wine with water.

explanatory inscriptions. The vase is ascribed to 550–500 B.C. (fig. 7).

(3) Vases of the style of *Nīcosthĕnēs*. These are characterized by greater firmness of design, and, above all, by a peculiar palmetto ornament on the neck of the vase—a very graceful combination of lotus flowers, with interlacing knots (Baumeister, fig. 2195). Nicosthenes is the most productive vase-painter known to us; but his designs have generally little more than an ornamental value. Black-figured vases signed by this artist (68 in all, including 48 *amphŏræ* and 13 *cўlĭces*) have been mainly found at Vulci, and Cervetri (the ancient Cære); and single specimens at Chiusi, Girgenti, and Athens (*Journ. Hellenic Studies*, 1885, pl. xliv; and Klein's *Meistersignaturen*, p. 51). A *crater* by this artist may be seen in the British Museum (B 273, a Battle of the Giants).

(4) Vases of the *severe* style. In these the surface of the black figures is seldom touched up with any other colour, but the details of the limbs and drapery are indicated by incisions with a dry point. The forms are designed with great energy and with an evident desire to emphasize their anatomical structure. All trace of oriental ornamentation has vanished. Among the artists in this group are Amāsĭs (British Museum, B 188 and 426; Miss Harrison, in *Magazine of Art*, 1885, p. 503; *Mythology, etc., of Athens*, p. xxvii); Tlēsōn (represented by 36 cylices, 22 with figures, and the rest without); and Hermŏgĕnēs (17 *cylĭcĕs*, 10 with figures and the rest without, one of the former being in the Fitzwilliam Museum, Cambridge).



(5) * BLACK-FIGURED HYDRIA, FROM VULCI.
Height, 22 inches; diameter of shoulder, 13 inches.
(Museum of Geology, Jermyn Street; C 31.)

(5) *Panathenaic amphŏræ*. These were presented as prizes to the victors in the Panathenaic games. They are in the form of an *amphora*, with a lid at the top, and were filled with oil from the sacred olive trees of Attica (Pindar, *Nem.* x 35; Aristotle, *Constitution of Athens*, 60). The obverse has an armed figure of Athēnē, with helmet, shield, and lance, and, on either side, a column surmounted by an owl, a cock, a small vase, or a figure. In the field are usually two inscriptions running down the columns, indicating (*a*) the purpose

/,' .2*' =&3*' &41'& ' .2*' & -2/4' /,' .2*' 5*&(' 8,!>' R9' 2*' (*=*(3*' 32/A3' .2*' 4&.0(*' /,' .2*' -/4.*3.' ,/(' A2!-2' .2*' 7(!Q*' &3' >!=*4' 2*3*' =&3*3' 2&=*' <**4' ,/041' !4' .&;5' 8&.' &*(*9' !4' .2*' 1!3.(!-.' /,' 5(*4 ' 8!4-;01!4>' /4*' 3!>4*1' <5' !..03' <*;/4>!4>' ./' .2*' C.2' -*4.0(5' &41' 4/A' !4' .2*' (!.!32' 03*06' ' ? T9' &41' !4' /.2*(' 7&(.3' /,' .2*' *;;*4!-' A/(;1' 4*' <*&(!4>' .2*' 4&6*' /,' K-?;03' A&3' ,/041' &.' &(*4.06' &41'! ' &33!>4*1' ./' ".2*' V.2' -*4.0(5' 4.!;' ;&.*;5'/4;5'&' 3!4>;*

!4' //6' ' 2*' ;&..*(' <*;/4>' ./' .2*' C.2' -*4.0(5 9' 06*(/03' ,(&>6*4.3' /,' 30-2' =&3*3' 2&=*' <**4' 4/.!-*1' /4' .2*' -(/7/;!3' 4*&(' .2*' .*67;*' /,' .2*4*' /;;&3' ./' A2/6' .2*5' 2&1' 1/0<.;*33' <**4' 1*1!-&.*1' 4' .2!3' -;&33' /,' =&3*3' .2*' <;&-D' ,!>0(*3' &(*' 4/' -/6' *;03!=*' 7(//,'/,'&4.!:0!.5' 2*4' .2!3' 3.5;*' 2&1' <**4' ;/4>' 307*(3*1*1' .2*' &(-2&!-' .57*' /,' .2*4*' !4' <;&-D' &41' A2!.*' &41' A!.2' !4-!3*1' ;!4*3' /4' &' (*1' >(/041' A&3' D*7.' 07' ,/(' 6&45' 5*&(3' &3' !3' 7(/=*1' <5' .2*' 1&.*3

G*O&67;*' 2&1' <**4' ,/041' &.' .2*43' !.3*;,' 2!3' !3' .2*' H 0B/4' &672/(&I' !4' .2*' (!.!32' 03*06' 8=&3*' //6' ' ' $'' /4' 7*1*3.&;' C' <*.A**4' &3*3' ' &41' 9' " .2*4*' !3' !4' <;&-D' A!.2' .2*' ,;*32' -/;/0(*1' A2!.*' &41' A!.2' .2*' !43-(!7.!/4' &41' .2*' ./0-2*3' !4' .2*' 1(&7*(5' !4' -(!63/4' 4' .2*' /.2*(' 3!1*' !3' &' -2&(!/.**(' 1(!=!4>' &' B 1' 2*' =&3*' !3' &3-(!<*1' ./' .2*' ?.2' -*4.0(5' 8 4' .2*' 3&6*' (//6' .2*(*' &(*' K,/0(.**4' /.2*(' &4&.2*4&!-' =&3*3' &41' .*4

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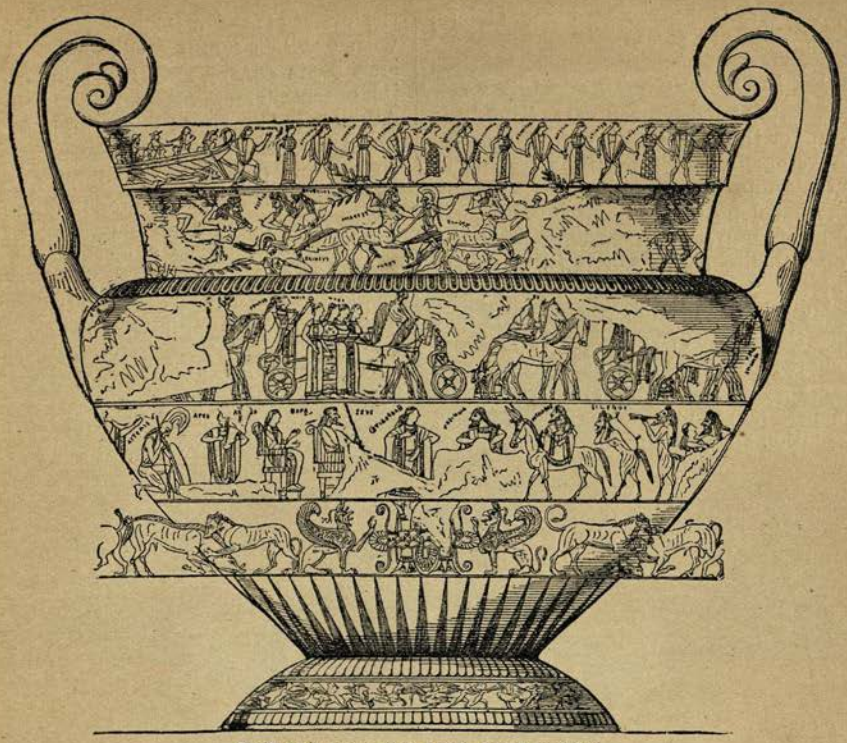


(7) * THE FRANÇOIS VASE, FROM CHIUSI.
(Florence Museum.)

British Museum, (B 254) we have, on the obverse, Ajax and Achilles, beside the altar of Athene, engaged in a game resembling draughts; they are painted in *black* with chocolate-red touches, and with minute details, such as the drapery over their armour "executed in incised lines of extreme fineness and gem-like treatment" (Prof. Middleton, *Encyclopædia Britannica*, xix, p. 612). On the reverse we have, in *red* figures on a black ground, Hĕrăclēs strangling the Nemean lion in the presence of Athene. Similarly on two cups, in the same museum, we have red figures on a black ground outside, with black figures on a red ground inside. Elsewhere, an amphora, signed by Andŏcĭdēs, shows the simultaneous employment of both styles (*Bull. dell' Inst. Arch.*, 1845). Other artists of the transition, whose remaining works exhibit both styles on the same vase (always a *cylix*), are Hischȳlus, Nīcosthĕnēs, Pamphæus, Chĕlis, Epictētus, and Epĭlȳcus. Apart from vases in both styles combined, the first three artists, with Andocides, are represented by black-figured and also by red-figured vases; the last

(8) * PANATHENAIC AMPHORA.
(Millingen, *Uned. Mon.*, pl. i.)

three, by red-figured vases alone (Klein, *Meistersignaturen*, p. 7).

(III) *Vases with Red Figures* (fig. 9).

Fragments of red-figured vases have been found under the *débris* of the old temples on the Acropolis, burnt by the Persians in 480 B.C. Thus the most ancient vases in this style belong to the same date as some of the black-figured vases. Those with red figures probably continued until the early part of the 2nd century B.C. This class is by far the most numerous, and it also includes the finest specimens. It is generally characterized by the disappearance of all traces of conventional and traditional treatment. The number of figures is fewer, the execution simpler and more refined, and the artist of the celebrated *cylix* at Berlin with Achilles tending the wounded Patroclus in its centre, and the twelve gods on its outer surface (Baumeister, fig. 2398). Another is CHACHRŸLĬŌN, who is known by about sixteen vases, with compositions of an elegant design, marked by an archaic severity, but already showing signs of a greater freedom and elasticity of style. Among his works is a *cylix*, now in Florence, in the centre of which is a winged Ĕrōs floating over the sea, and on the outside six of the exploits of Thēseus (Miss Harrison's *Mythology, etc., of Athens*, p. cxii); also a *cylix* in the British Museum, with Theseus and Ariadne, as well as Theseus and Antĭŏpē (*ib.* pp. cxxii., cxxxix). A similar vase, now in Munich, with the

(9) * RED-FIGURED GREEK VASES OF THE BEST PERIOD.

the draperies and other details treated with an exquisite purity of taste. In the earlier specimens the drawing is strongly sculpturesque; the forms noble and massive, treated with breadth and simplicity, and kept strictly to one plane. The following are the main sub-divisions:

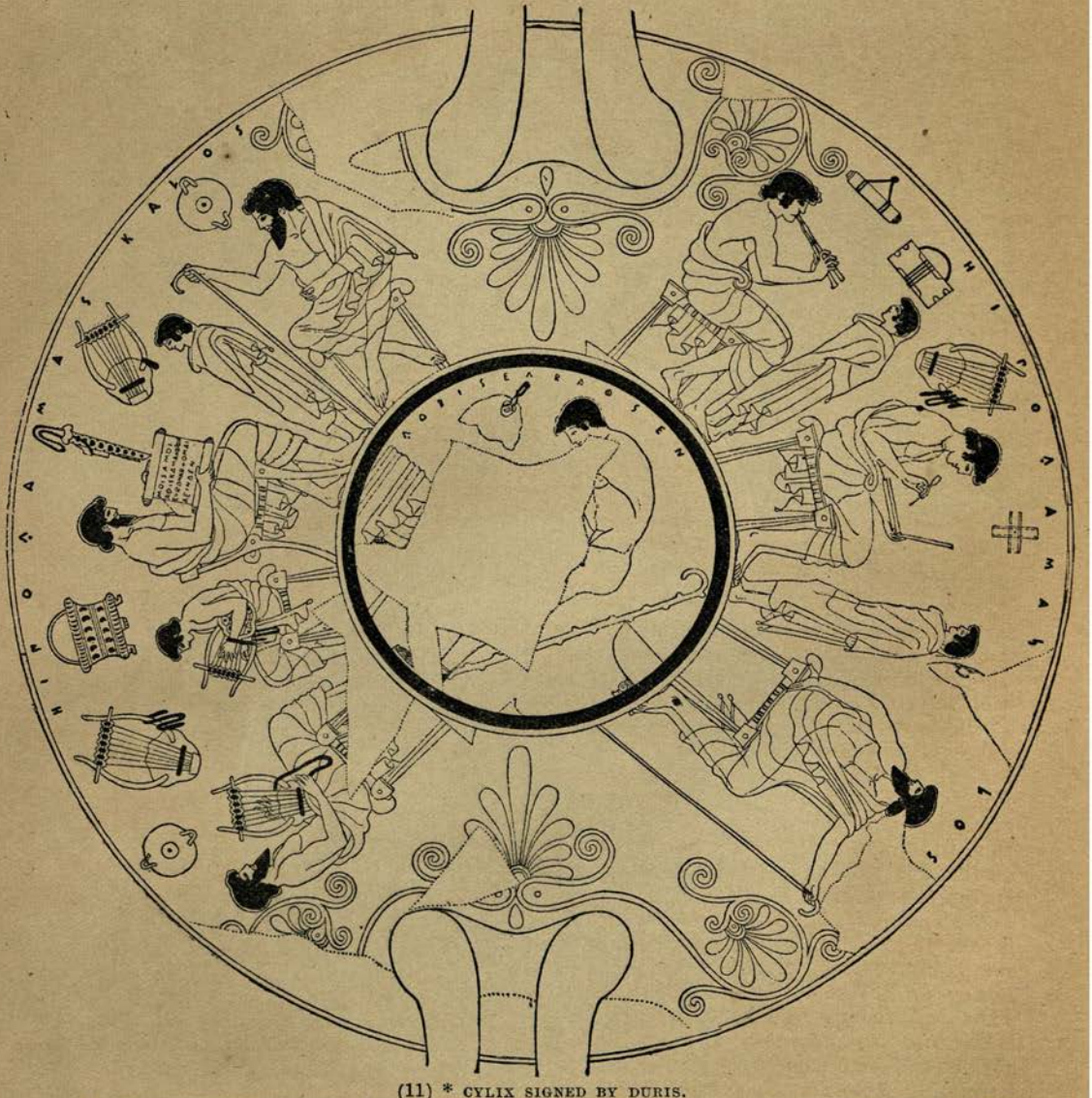
(1) The *severe* style. The compositions are somewhat stiff and ungraceful; the expression of the face recalls the earlier style; but art is obviously on the point of bursting its trammels and asserting its freedom. The hair and beard are arranged with care, and the folds of the drapery fall straight to the ground. The date of these vases is about 500 B.C. Among the artists of this period, Sōsĭās excels in the execution of detail, treated with a rare energy. He is conflict of Hērăclēs and Gērўŏneus, in the presence of Athene and Iŏlāus, is the joint work of Chachrylion and his younger contemporary EUPHRŌNĬUS. Euphronius is the artist of a fine *cylix* with the adventures of Theseus, now in the Louvre (*ib.*, pp. cxiii. and 148; Baumeister, fig. 1877); of one in the British Museum (822 = E 28, Vase Room III, Case D), with Heracles and Eurystheus; of another, now at Perugia, representing Achilles slaying Trōĭlus (fig. 10); and lastly, of one at Berlin, with a polychrome design on a white ground for its central subject, Achilles and Dĭŏmēdēs. He is also the artist of a *psyktēr* (or wine-cooler) at St. Petersburg, with women reclining and playing the game of the *cottābus*; and of a *crātēr*, now in the Louvre, with

the wrestling of Heracles and Antæus. Almost all his extant works were found either at Vulci or Cære, and most of them are figured in the *Wiener Vorlegeblätter* v (*see also* Klein's *Euphronios*, ed. 2). xxxv). Another is no less instructive as to the literary and musical education of Athenian youth (fig. 11); and, lastly, one in the British Museum (852=E 48) gives us a graphic picture of a *sympŏsĭum*

(10) * CYLIX SIGNED BY EUPHRONIUS: ACHILLES SLAYING TROILUS.
(Perugia.)

Among other masters of this time was DŪRIS, one of whose 21 extant *cylices* represents the exploits of Theseus (Baumeister, fig. 1873), while others are of special interest for their details of ancient armour (*e.g.*, *ib.*, fig. 220; Schreiber's *Bilderatlas*, (*Wiener Vorlegeblätter*, vi 10; Schreiber's *Bilderatlas*, lxxvii 9). Another artist, HĬĔRŌN, is still represented by 16 *cylices* and 3 *cŏtŭli*; one of the *cotuli*, now in the British Museum (Vase-room III, case E, E 137), shows us Triptŏlĕmus starting

on his journey in his winged car, in the presence of Persĕphŏnē, Dēmētēr, and the personification of Eleusis (fig. 12); one of the *cylices* now in the Berlin Museum, has



(11) * CYLIX SIGNED BY DURIS.

Above the central subject (a youth adjusting his sandal) runs the inscription, Δορις εγραφσεν (*i.e.* Δοῦρις ἔγραψεν). The inscriptions on the exterior stand for: μοῖσά μοι ἀμφὶ Σκάμανδρον εὔρροον ἄρχομ' ἀείδειν, and Ἱπποδάμας καλός.
(Berlin Museum, 2285.)

Paris, an *Iliūpersis* (Louvre), a Comus scene (Würzburg), and Satyrs and Sīleni (British Museum, E 77).

(2) In vases of a *more graceful* style we find that forms of rude strength have given place to those of youthful grace, and stiff attitudes have yielded to others that are charming in their simplicity and their truth to nature; while the folds of the

the Mænads dancing in the presence of an archaic image of Dionysus (*ib.*, p. 287). Lastly, the artist Brygŏs is represented by 8 *cylices*, including among their subjects a Triptolemus (Frankfurt), a Judgment of

drapery float softly about the limbs. Among the best examples are the fine *amphoræ* from Nola in the Naples Museum; *e.g.*, that representing the Last Night of Troy (Baumeister, fig. 795; Birch, figs. 138, 139), as well as the beautiful *stamnŏs*[1] with the dancing Mænads in the same collection (fig. 13; *cp.* DIONYSUS, fig. 3).

(12) * COTYLUS, OR CUP, SIGNED BY HIERON.
(British Museum, Vase Room III, Case E; E 137; *cp.* Miss Harrison's *Mythology and Monuments of Athens*, pp. l, lxv, ci.)

On vases of the 4th century, the subjects are less exclusively mythological than before, and the artist's fancy delights in playing with scenes of daily life. We have an instance of this in a *cylix* of Vulci, where the swallow is welcomed as the herald of spring (Baumeister, fig. 2128).

(3) The *Attic style of perfect elegance* is exemplified in vases sometimes of small dimensions, in the shape of a *pyxis*, an *œnŏchŏē*, or an *ărÿballus*.[2] They are readily recognised by the beautiful black ground, and by the garlands of pointed myrtle leaves that frequently decorate them, but above all by the extreme delicacy of their pictorial designs. One of the most interesting is an *aryballus* in the Naples Museum, with the battle of the Athenians and Amazons. Though found at Cumæ, it has all the characteristics of the Attic style, and has nothing in common with the Italo-Greek products of the same period (Heydemann, No. 239). Another is an *aryballus* found at Æxōnē, representing the train of

(13) * MÆNADS.
(From *stamnos* in Naples Museum; Panofka, *Dionysos und Thyaden*, pl. i 2; Euripides, *Bacchæ*, ed. Sandys, pp. xxxii and cxxiv.)

Dionysus; the gracefulness of the attitudes, the expression of the faces, and the exquisite delicacy of the design, make it a masterpiece (Collignon, *Arch. Gr.*, fig. 115). Scenes of daily life are also to be noticed, such as ladies engaged on their toilet or calling on their friends. The skill of the

[1] A large jar for holding wine or oil, with two small, ear-shaped handles. (*See* VESSELS, fig. 1, no. 18.)

[2] The *œnochoë* is a small wine jug (*see* VESSELS, fig. 1, nos. 26–30); the *aryballus*, a globular vase, shaped like a pouch (*ib.*, no. 36).

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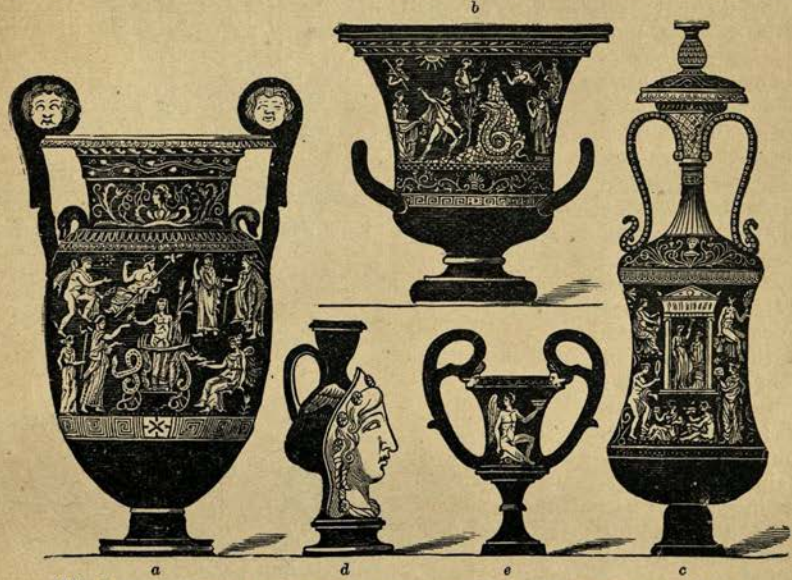
tion of the most perfect and ideal beauty" (Prof. Middleton in *Encycl. Brit.*, xix, p. 613, with plate v; *cp.* Baumeister, fig. 938).

In place of paintings we sometimes find figures in relief applied as a kind of frieze to the body of the vase. The most beautiful examples show a combination of relief, polychromy, and gilding. Such is the famous vase found at Cumæ and now at St. Petersburg; the groundwork of which is covered with a brilliant black, and is vertically fluted. It has two friezes with figures in relief, the upper representing Triptolemus and the Eleusinian goddesses; the lower, lions, dogs, panthers, and griffins (Baumeister, fig. 520).

and Northern Italy, but abound in Sicily and in Southern Italy, especially at Ruvo, Armento, and Sant' Agata di Goti. The best among them range from *after* B.C. 404, perhaps from B.C. 300 to nearly 200. After this the style of the paintings became extremely coarse, and about 100 B.C. painted vases ceased to be made.

The *technical processes* followed in the manufacture of vases have in part been treated under POTTERY. Fig. 16 exhibits the design on a vase in which some of the details of ornamentation are represented in actual course of being carried out. In the centre stands Athene, the patron-goddess of all kinds of handicraft, with a crown in her



(15) * THREE LARGE VASES OF THE DECADENCE, WITH TWO SMALLER VASES.

(*a*) An *amphora*, known as the Poniatowski vase, found in a tomb at Bari in Apulia, and now in the Vatican Museum, representing the myth of Triptolemus (Lenormant and De Witte, *Elites Céramographiques*, III, lxiii). (*b*) A *crater*, found at Sant' Agata de' Goti, now in the Louvre, closely resembling the vase by Asteas, Naples, 3226; Cadmus slaying the dragon. (*c*) A *candelabrum amphora*, with an open building and figures grouped in two rows. (*d*) A *prochous* with a female head. (*e*) A *carchesium* (Dubois Maisonneuve, *Introd. à l'Etude des Vases Ant.*, pl. vii. ii, lxvii, xxxvii).

IV. *Vases of the Decadence.*

The red colour of the figures is now paler, the glaze often of a dull, leaden hue; the ornaments are numerous and large in proportion to the subjects (fig. 15 *a*, *b*, *c*). The figures are no longer few and detached, but grouped in masses on the large vases, and the composition is not statuesque, but essentially pictorial. White opaque colour is freely introduced for the flesh of the females and children, and even for that of the males; as art declines, it almost supersedes red.

Such vases are rarely found in Greece

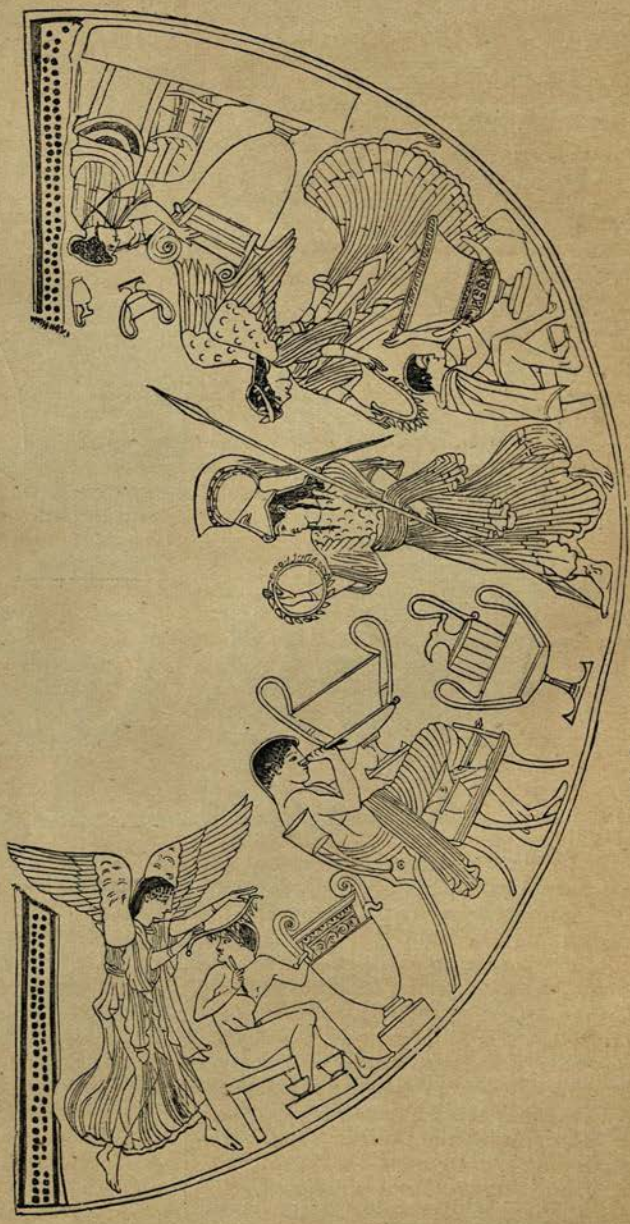
hand to reward the successful craftsman. On either side of her a winged Nīkē is placing a wreath on the head of one of those engaged in painting the decorations of the vases. The shapes represented are, beginning from the left, *amphŏra*, *canthărus*, *prŏchŏus* (in *cantharus*), *crātēr*, *amphora*, and above the last, on the extreme right, a small *cantharus* and an *œnŏchŏē*.

Uses. Nearly all the 20,000 vases already discovered were found in tombs. The earliest recorded discovery of such vases was on the occasion of the rebuilding of Corinth, B.C. 46, when the tombs of the city destroyed a

century before were rifled of their contents, which became known in Rome as *nĕkrŏkŏrinthĭă* (Strabo, 382). Vases were doubtless originally made for the use of the living; but in process of time it became customary to place the more ornamental varieties in the sepulchres of the dead, and the custom led to the manufacture of ornamental vases for this special purpose (fig. 17). An exception to the rule is furnished by the Greek city of Naucrătis, founded in the Delta of Egypt, apparently in the 7th century B.C., where a large number of fragments of pottery have been found in heaps near the ruins of the temples of Apollo and Aphrodite. Many of the fragments bear incised inscriptions recording the dedication of the vases to those deities (*British Museum Guide*, 1890, p. 188). The vases in everyday use, as opposed to those found in tombs, were much plainer: those represented in vase-paintings are almost always coloured black, without any paintings. Among the more interesting exceptions is a beautiful *pyxis*, or perfume-box, in the British Museum (Vase Room III, E 770), representing a lady's toilet, with several painted vases set about the room as ornaments, and filled, like *jardinières*, with flowers or olive-branches (*Encyc. Brit.*, xix, p. 614, fig. 31; *cp.* Birch, *l.c.*, p. 354).

The *subjects* are mainly mythological, but are also frequently taken from real life, and include religious rites, athletic contests, dances and marriages, funerals, and scenes from the drama. Among the few historical subjects are Crœsus on his funeral pyre (Duruy, *Hist. des Grecs*, i 680), Arcĕsĭlās of Cyrene (fig. 6), and Darius preparing to invade Greece (a large vase in the Naples Museum).

For a long time almost all the vases discovered were found in Etruria and in South Italy and Sicily. Most of those discovered in Etruria, although popularly known as Etruscan vases, are really of Greek manufacture. The finest of those found in Italy



(16) * INTERIOR OF A VASE MANUFACTORY.
(*Hydria* from the *Museo Caputi*, Ruvo; *Annal. d. Instituto*, 1876; *tav. d'agg.* D E.)

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003 /4>43 &.!4 >!&6 6&(!&4 /, .2* ,!(3. 2&;, /, .2* @41 -*4.0(5 * .2* -/67/3*(/,&A/!D 5 (1 A2!-2 !3 3.!;;* *0.&4.

:; 03 2.(-2;43 # /6&4 2!3./(!&& </6 &</0. $T * *4.*(*1 .2* &(65 *&(;5 &41 ,(/6 C 7&(.;5 &3 &4 /,,!-*(!4 .2* -&=&;(5 &41 7&(.;5 &3 & ;*>&.* 2* &--/67&4!*1 !<*(!03 ,/(*!>2. 5*&(3 /4 &;; 2!3 -&67&!>43 !4./ *(6&45 &44/4!& &41 &;6&.!& 4 $V 2!2*;1 .2* 7(&*./(32!7 ,/(A2!-2 <* A&3 A&(6;5 (*-/66*41*1 <5 0>03.03 &41 !<*(!03 4 @T" N 2* -/67/3*1 !4 &,*A 6/4.23 & 32/(.3D*.-2 /, /6&4 2!3./(5 !4 .A/ </!D3 # 7 " A2!-2 2* 1*1!-&.*1 ./ 2!3 7&.(/4 !4!-!03 /4* /, .2* -/430;3 ,/(.2* 5*&(N 2* A/(D 2&3 -/6* 1/A4 ./ 03 !4 & =*!"5 -/4,03*1 &41 ,(&>6*4.&(5 -/41.!/4 4;5 &,*A -2&7.*(3

(*6&!4 /, .2* ,!(3. </!D A2!-2 *413 A!.2 .2* 1*3.(0-.!/4 /, &(.2&>* 2*.2*(-/43!1*(*1 &3 & 2!3./(!&4 /(&3 & 3.5;!3. 2* !3 & 1!;*..&4.* * 2&1 4/ 37*-!&; -&;; ./ <* & 2!3./(!&4 &41 A&3 1*3.!.0.* /, &45 6/(* .2&4 /(1!4&(5 D4/A;*1>* /(&7F 7(/7(!&.* 7(*7&(&.!/4 &;.2/0>2 4/. 1*=/!1 /, !6&>!4&.!/4 &41 >*403 !3 (A&3 -/67/3*1 A!.2 *0.(*6* 2&3.* &41 6*(*;5 -/43!3.3 /, & 406<*(/, !.*63 /, !4,/(6&.!/4 20((!*1;5 70. ./>*.2*(*4-* !.3 307*(,!-!&; *0*-0./!4 &41 !.3 406*(/03 6!3.&D*3 ,.*(.2* 6&44*(/, &44&;!3.3 2!3 /(D <*-/6*3 6/(* 1!,,03* .2* 4*&(*(2* &77(/&-2*3 ;!!3 /A4 .!6* . *413 A!.2 & 7&4*>5(!- /4 .2* !67*(!&; 2/03* &41 *37*-!&;;5 /4 !<*(!03 !4,;&.*1 A!.2 ,0;F 3/6* ,;&..*(!*3 &41 2!>2"3/041!4> 72(&3*/F ;/>5 --/(1!4> ./ 2!6 .2* ,/(.04* /, /6* A2!-2 2&1 1*-;!4*1 &,.*(.2* 1*3.(0-F .!/4 /, &(.2&>* &41 2&1 <**4 (!3!4> &>&!4 ,(/6 .2* .!6* /, 0>03.03 2&1 (*&-2*1 !.3 -0;6!4&.!4> 7/!4.041*(!<*(!03 * 6&5 <* !1*4.!,!*1 &3 .2* !4=*4./ /, .2* -/0(.;5 3.5;* /, A(!.!4> 2!3./(5 * 1/*3 4/. ;!4>*(;/4> /=*(,&-.3 <0. 7(*,*(3 ./ 1A*;; /4 .2* 7/(.(&5&; /, .2* =&(!/03 -2&(&-.*(3 .2&. 7(*3*4. .2*63*;=*3 !4 .2* -/0(3* /, .2* 2!3./(5 !3 ;&4>0&>* !3 3/6*.!6*3 -&(*;*33 &41 -/66/47;&-* 3/6*F .!6*3 /(4&.* &41 &,,*-.*1 A!.2 &;; 6&44*(/, 7/*.!-&; *07(*33!/43 !3 ,&4-5 ,/(-/6F 7/3!4> 3.(!D!4> 3*4.*4-*3 &41 2!3 0410* 7(*1!;*-.!/4 ,/(&4.!.2*3!3 2&=* &4 04,/(F .04&.* *,,*-. /4 <!3 3.5;*

4&4.!03 /(.04J.03 # " $ 2 " " &.!4 7/. </(4 &</0. V V &. &(=;3!06 #+ !4 /(.2 .&;5 ,.*(& ;*&(4*1 *10-&.!/4 !4 &=*44& 2* 7(/-**1*1 &</0. V?N ./ &0; A2*(* 2* <*-&6* &4 *--;*3!&3.!-&. /!.!*(3 &41 1!*1 &3 <!32/7 &</0. ?NN 6/4> 2!3 A/(D3 A* 7/33*33 &4 *7!-7/*6 /4 . &(.!4 &3 A*;; &3 &-/;*-.!/4 /, NN 7/*63 !4 *;*=*4 </!D3 /, =*(5 =&(!/03 D!413 !4-;01!4> 7&4*>5(!-3 *7!>(&63 ;*..*(3 *;*>!*3 2564 3 &41 2*4-* -&;;*1 " 2*3* 7/*63 A2!-2 &(* 6/3.;5 *;*>!&- &(* 4/. 0430--*33,0; !4 ,/(6 &41 &(* /, B*&./=&;0* ,/(.2* 2!3./(5 /, .2* .!6* 4* /, .2* 6/3. !4.*(*3.!4> !3 .2* -/67&4!/4 7!*-* ./ .2* /, 03/4!03 .2* 1*3-(!7.!/4 /, & K/0(4*5 <5 .2* /3*;;* &41 2!4* ,(/6 *.Q ./ 41*(" 4&-2 #5 > 1

*4&.;/4*3 2* -/4.*3 /, <*&3 A!.2 / * &4/.2*(/(/, 6*4 A!.2 <*&3 .2&. ,/(6*1 7&(. /, .2* 32/A3 /, A2!-2 .2* /6&43 *(* 7&33!/4&.*;5 /41 2*5 A*(* ,!(3. !4.(/10-*1 &. .2* >&6*3 /, &(-03

0;=!03 /<;;!/($$? 2/3* A2/ .//D 7&(.!4 .2*3* -/4.*3.3 A*(* -&;;*1 2*5 A*.* *!.2*(-(!6!4&;3 &41 7(!3/4*(3 *, A&(2/ A*(* 7//(;5 &(6*1 /(-/6F 7;*.*;5 0&&(6*1 7!..*1 &>&!43. A!;1 <*&3.3 A2!-2 2&1 7(*=!/03;5 <**4 6&1* ,0(!/03 <5 26!>*(<(&41!4> &41 >/&1!4>* /(*;3* 2!(B 6*4 A2/ ;!D* >;&1!&./(3 *(* .(&!4*1 !4 37*-!&; 3-2//;3 &41 ,0;;5 &(6*1 =*4 !4 .2* ;&3. -*4.0(5 /, .2* *70<;!- 441 3.!;; 6/(* 041*(.2* 67!(* !4-(*1!<;* *07*43*3 A*(* !4-0((*1 !4 .2* -/;;*-.!/4 /, .2* (&(*3. &4!6&;3 ,(/6 .2* (*6/.*3. :0&(F .*(3 /, .2* >;/<* &41 !0 .2* /.2*(&((&4>*F 6*4.3 ,/(.2*!(<&!.!4> 203 /67*5 7(/F =!1*1 &32/A /, VNN ;!/43 $R *;*72&4.3 &41 C$N /.2*(,(!-&4 &4!6&;3 &41 &;!>!!;& -&03*1 CNN <*&(3 &41 .2* 3&6* 406<*(/, &4!6&;3 ,(/6 ,(!-& ./ .*&(*&-2 /.2*(./ 7!*-*3 --&3!/4&;;5 &. .2*3* -/6<&.3 A!.2 A!;1 <*&3.3 .2* 6&4 -/41*64*1 ./ 1*&.2 A&3 &..!(*1 !4 &4 &77(/7(!&.* -/3.06*3/ &3 ./ (*7(*3*4. & 3&4>0!4&(5 3-*&* ,(/6 65 $'2/;/>5 /(2!3./(5 &3 ,/(*0&67;* (72*03 <*!4> ./(4 ./ 7!*-*3 <5 <*&(3 /A4 ./ .2* G*41 /, .2* *70<;!- .2*3* 32/A3 .//D 7;&-* !4 .2* !(-03 &41 .2* >(*&.(*02!<!./43 %A*(* 2*;1 .2*(* *=*4 &,.*(.2&. .!6* 04.!; .2* &672!.2*&.(*3 <*-&6* .2* 030&; 7;&-*3 /,7*(,/(6&4-* &41!41**1 2*4 .2*5 A*(* -/6<!4*1 A!.2 .2* >;&1!&./(!&; *02!<!./43 .2*5 .//D 7;&-* !4 .2* *&(;5 6/!0!!4> <*,/(* .2*6 8 2* (*70>4&4-* /, 3/6* /, .2* 6/(* %-0;.!=&.*1 /6&43 ,/(.2*3* *02!<!./43 !3 %32/A4 !4 &;*..*(/, !-*(/3 A =!! $ g 2*5 A*(* -/4.!40*1 1/A4 ./ .2* ?.2 -*4.0(5

6/4> .2* (**D3 *37*-!&;;5 .2* .2*F 4!&43 -/-D",!>2.3 &41 :0&!;",!>2.3 A*(*=*(5 7/70;&(.2*43 -/-D",!>2.3 A*(* 2*;1 %/4- &5*&(!4 .2* .2*&.(*3 &. .2* 70<;!- %*07*43* 2* .(&!4!4> /, ,!>2.!4> -//D3 A&3 -/410-.*1 A!.2 >(*&. -&(* *(.&!4 7;&-*3 30-2 &3 &4 >(&!4 /*/.!& 2/1*3 '&41 *;?3 2&1 .2* (*70.&.!/4 /, 7(/10-!4> .2* ;&(>*3. &41 3.(/4>*3. /A2*. .2*!(*&>*(4*33 ,/(.2* -/6<&. .2*5 A*(* 7(*F =!/03;5 ,*1 A!.2 >&(;!- 2*!(;*>3 A*(* &(6*1 A!.2 <(&33 370(3 &41 .2*5 A*(* 3*. %/77/3!.* ./ *&-2 /.2*(!4 .&<;*3 ,0(4!32*1 A!.2 (&!3*1 *1>*3 *.3 /,.*4 ./ &4 *4/(F 6/03 &6/04. A*(* ;&!1 /4.2* ,!>2.3 <5 .2* '>&6*3.*(3 &3 A*;;* &3 <5 .2* 37*-.&./(3 ?4..3 (!>!4&;;5 & &.!4 >/11*33 /, 37(!4> 7(*3!1!4> /=*(,;/A*(">&(1*43 &41 =!4*3 &41 &3 30-2 A/(32!77 <5 >&(F 1*4*(3 203<&41 6*4 ,;/(!3.3 &41 =!4*F 1(*33*(3 . &=!4;06 .2*(* A&3 &4 "&4-!*4. 3&4-.0&(5 1*1!-&.*1 ./ 2*(<5 .2* &.!43" /4 .2* /.2*(2&41 !4 /6*3 32* 2&1 !4 /;1*4 .!6*3 4/ .&.* A/(32!7 &.;*&3 041*(.2!3 4&6* *(*&(;!*3. /6&4 4&6* &77*&(3 ./ 2&=* <**4 A2!-2 A&3 !4.*(7(*.*1 ;&.*(/4 &3 : >/11*33 /, 65(.;*3 /A 32* -&6* ./ <* !1*4.!,!*1 A!.2 .2* (**D ;/=*">/11*33 72(/1!.* !3 4/.-;*&(2* ;1*3.2!3./(!-&; 6*4.!/4 /, 2*(A/(32!7 !4 .2!3 -2&(&-.*(!3 !4 @$U A2*4 <5 .2* /(1*(/, .2* !<5;;!4* </D3 &,.*(.2* 1!3&3.*(&. &D* (&3!6*4* & .*67;* 1*1!-&.*1 ./ .2* *403 /, /04. (50 !4 !-!;5 &4 &4-!*4. &41 A*;; D4/A4 7;&-* /(.2* A/(32!7 /, 72(/1!.* (&4!& A&3 <0!;./4 .2* &7!./; *3!1*3 .2* =&(!/03 /, A/(32!7 A2!-2 32* *4K/5*1 -/((*37/41!4> ./ .2* (**D -0;./, 72(/1!.* *403 2&1 &37*-!&; 3!>4!,!-&4-* &3 6 " - /(6/.2*(/, .2* /6&4 7*/7;* .2(/0>2 2*(3/4 4*&3 2* A&3 *37*-!&;;5 A/(32!77*1 &3 6/.2*(/, .2* (&-* /, .2* 0;!! A2!-2 -;&!6*1 1*3-*4. ,(/6 2*(>(&413/4 ;0;03 .2* 3/4 /, 4*&3 .A&3 /4 .2!3 &--/04. .2&. 3*3&(!4.2* /(0 6 <0!;.<5 2!6 !4 C? *(*-.*1 &6&>4!,!-*4. .*67;* !4 2*(2/4/0(&3 6 " - !4 A2!-2 >&6*3 A*(* &440&;;5 2*;1 ,/(*;*=*4 1&53 /2*(&3 6/.2*(/, .2* A2/;* /6&4 (&-* &3 A*;;* &3 ./ /6&4 .2* 7*(3/4!,!-&!/4 /, /6* &1(!&4 1*1!F -&.*1 &37;*41!1 1/0<;* .*67;** -/67;*.*1 $ V .2* (0!43 /, A2!-2 -&4 3.!;; <* 3**4 !4 .2* 4*!>2</0(2//1 /, .2* /;!3*06 4 ;&.*(.!6*3 !.A&3 -&;;*1 (# (,!> $ 9

2* $3./, 7(!;A&3 3&-(*1 ./ *403 &3 .2* 1&5 /4 A2!-2 32* A&3 A/(32!77*1 <5 .2* /6&4 6&./43 ./>*.2*(A!.2 A " = .2* >/11*33 /, 7(/37*(!.5 !4 .2* !4F .*(-/0(3* /, 6*4 &41 A/6*4 &41 &;3/ GA!.2 /4-/(1!& &3 = .2* >/11*33 A2/ .0(43 .2* 2*&(.3 /, A/6*4 ./ -2&3.!.5 &41 6/1*3.5 .2*(2/;!1&53 A*(* D*7. <2*(!4 .2* 3&6* 6/4.2 &3 >/11*33 /, 7(/3.!.0.!/4 # 1 A 4 .2* .57*3 /, *403 !4 A/(D3 /, &(. -+ % *(>!;f &., = : *4/. = 1 2* 37*;;!4> = 1 !3 &..*3.*1 4/. /4;5 <5 .2* <*3. 6&403-(!7.3 <0. <5 !43-(!7.!/43g 2* ,&6/03 /6&4 7/*. </(4 $V.2 -./<*(UN (&. 41*3 &=!;;&>* 4*&(&4.0& /4 .2* !4-!03 A2*(* 2!3 ,&.2*(7/33*33*1 & 36&;; *3.&.* ,.*((*-*!=!4> 2!3 *&(;5 *10-&.!/4 &. (6/4& &41 8&,.*(&3306!4> !4 VV .2* ./>& /, 6&42/19 &. !;&4 2* 7(/-**1*1 !4 V ./ /6* A2*(* 2* 1*=/.*1 2!63*;, ./ (2*./(!-&; 72!;/3/72!-&; &41 7253!-&; 3.01!*3 (*=*4.*1 <5 A*&D4*33 /, 2*&;.2 &.!43" /4 .2* /.2*(2&41 !4 /6*3 32* 2&1 !4 /;1*4 .!6*3 4/ .&.* A/(32!7 &.;*&3 041*(.2!3 4&6* &77*&(3 ./ 2&=* <**4 A2!-2 A&3 !4.*(7(*.*1 ;&.*(/4 &3 : >/11*33 /, 65(.;*3 /A 32* -&6* ./ <* !1*4.!,!*1 A!.2 .2* (**D ;/=*">/11*33 72(/1!.* !3 4/.-;*&(2* ;1*3.2!3./(!-&; 6*4.!/4 /, 2*(A/(32!7 !4 .2!3 -2&(&-.*(!3 !4 @$U A2*4 <5 .2* /(1*(/, .2* !<5;;!4* </D3 &,.*(.2* 1!3&3.*(&. &D* (&3!6*4* & .*67;* 1*1!-&.*1 ./ .2* *403 /, /04. (50 !4 !-!;5 &4 &4-!*4. &41 A*;; D4/A4 7;&-* /(.2* A/(32!7 /, 72(/1!.* (&4!& A&3 <0!;./4 .2* &7!./; *3!1*3 .2* =&(!/03 /, A/(32!7 A2!-2 32* *4K/5*1 -/((*37/41!4> ./ .2* (**D -0;./, 72(/1!.* *403 2&1 &37*-!&; 3!>4!,!-&4-* &3 6 " - /(6/.2*(/, .2* /6&4 7*/7;* .2(/0>2 2*(3/4 4*&3 2* A&3 *37*-!&;;5 A/(32!77*1 &3 6/.2*(/, .2* (&-* /, .2* 0;!! A2!-2 -;&!6*1 1*3-*4. ,(/6 2*(>(&413/4 ;0;03 .2* 3/4 /, 4*&3 .A&3 /4 .2!3 &--/04. .2&. 3*3&(!4.2* /(0 6 <0!;.<5 2!6 !4 C? *(*-.*1 &6&>4!,!-*4. .*67;* !4 2*(2/4/0(&3 6 " - !4 A2!-2 >&6*3 A*(* &440&;;5 2*;1 ,/(*;*=*4 1&53 /2*(&3 6/.2*(/, .2* A2/;* /6&4 (&-* &3 A*;;* &3 ./ /6&4 .2* 7*(3/4!,!-&!/4 /, /6* &1(!&4 1*1!F -&.*1 &37;*41!1 1/0<;* .*67;** -/67;*.*1 $ V .2* (0!43 /, A2!-2 -&4 3.!;; <* 3**4 !4 .2* 4*!>2</0(2//1 /, .2* /;!3*06 4 ;&.*(.!6*3 !.A&3 -&;;*1 (# (,!> $ 9

2* $3./, 7(!;A&3 3&-(*1 ./ *403 &3 .2* 1&5 /4 A2!-2 32* A&3 A/(32!77*1 <5 .2* /6&4 6&./43 ./>*.2*(A!.2 A " = .2* >/11*33 /, 7(/37*(!.5 !4 .2* !4F .*(-/0(3* /, 6*4 &41 A/6*4 &41 &;3/ GA!.2 /4-/(1!& &3 = .2* >/11*33 A2/ .0(43 .2* 2*&(.3 /, A/6*4 ./ -2&3.!.5 &41 6/1*3.5 .2*(2/;!1&53 A*(* D*7. <2*(!4 .2* 3&6* 6/4.2 &3 >/11*33 /, 7(/3.!.0.!/4 # 1 A 4 .2* .57*3 /, *403 !4 A/(D3 /, &(. -+ % *(>!;f &., = : *4/. = 1 2* 37*;;!4> = 1 !3 &..*3.*1 4/. /4;5 <5 .2* <*3. 6&403-(!7.3 <0. <5 !43-(!7.!/43g 2* ,&6/03 /6&4 7/*. </(4 $V.2 -./<*(UN (&. 41*3 &=!;;&>* 4*&(&4.0& /4 .2* !4-!03 A2*(* 2!3 ,&.2*(7/33*33*1 & 36&;; *3.&.* ,.*((*-*!=!4> 2!3 *&(;5 *10-&.!/4 &. (6/4& &41 8&,.*(&3306!4> !4 VV .2* ./>& /, 6&42/19 &. !;&4 2* 7(/-**1*1 !4 V ./ /6* A2*(* 2* 1*=/.*1 2!63*;, ./ (2*./(!-&; 72!;/3/72!-&; &41 7253!-&; 3.01!*3 (*=*4.*1 <5 A*&D4*33 /, 2*&;.2

&41' <&32,4!4*33' /,' 6&44*(' ,(/6' ;//D!K!>' ,/(A&(1' ./' &45' 30--*33' &3' &' 7;*&1*(' /(' !4' .2*' 3*(=!-*' /,' .2*' .&.*' 2*' (*.0(4*1' 2/6*' &41' !4' .2*' :0!*.' /,' .2*' -/04.(5' 1*=/.*1' 2!63*;,' ./' .2*' 3.015' /,' .2*' (**D' 7/*.3' !3' 6**.!4>' A!.2' .2*' (*,!4*1' &41' 7/*.!-&;;5' >!,.*1' 3!4;03' /;;;/' A2/' !4' C' .//D' -/6F 6&41' /,' (&437&1&4*' &0;' &3' ;!*0.*4&4.' /,' 4./45' &77*&(3' ./' 2&=*' >!=*4' 2!6' 2!3' ,!(3.' !67*.03' ./' 7/*.!-' -/67/3!.!/4' ,!.3' *&(;!*3.' 70<;!-&.!/4' 2!3' .*4' 9 1 2@((' A*(*' A(!..*4' !4' .2*' 5*&(3' C " U' A*(*' &,.*(A&(13' -/;;*-.*1' 041*(' .2*' .!.;*' /,' 2 '8H' &3./(&;' /*63'I9' 2*3*' &(*' !6!.&.!/43' /,' .2*' !15;3' /,' 2*/-(!.03'' .2*5' &(*' 2/A*=*(' ;*33' 4&.0(&;' .2*' 7!-.0(*3' /,' -/04.(5'&41'32*72*(1';!,*'<*!4>'!4.*(37*(3*1' .2(/0>2/0.' A!.2' (*,*(*4-*3' ./' -/4.*6F 7/(&(5'*=*4.3' ./' 2!3' /A4' ,/(.04*3' &41' ./' !67/(.&4.' 7*(3/43' 30-2' &3' -.&=!&4 /;;!/' &41' /(4*;!03' &;;03' ./' A2/6' .2*' 7/*.' A!32*1' *!.2*(' ./' -/66*41'2!63*;,' /(' ./' 32/A' 2!3' >(&.!.01*' <5' 2!3' -/67;!6*4.&(5' &;;03!/43' *' 2&1' /4' 3*=*(&;' /--&3!/43' <**4' -/67*;;*1' <5' .2*' ,/(-*' /,' -!(-06F 3.&4-*3' ./' &77*&;' ./' .2*' 7(/.*-.!/4' &41' 2*;7' /,' !4,;0*4.!&;' 6*4' /(' !43.&4-*' &.' .2*' 1!3.(!<0.!/4' /,' ;&41' ./' .2*' =*.*(&43' !4' C$' '2!3' /A4' *3.&.*' A&3' &77(/7(!&.*1' &41' !.' A&3' /4;5' .2*' &1=/-&-5' /,' /;;!/' &41' /,' /(F 4*;!03' &;;03' A2!-2' *4&<;*1' 2!6' ./' (*-/=*(' !.' 4' .2*' ,/;;/A!4>' 5*&(' A2*4' /;;!/' A&3' /<;!>*1' ./' >!=*' 7;&-*' ./' ;,*403' &(03' 2!3' 7(/7*(.5' A&3' &>&!4' .2(*&.*4*1' <0.' <5' .2*' !4,;0*4-*' /,' &*-*4&3' ./' A2/6' /;;!/' 2&1' (*-/66*41*1' 2!6' &6*413' A*(*' 6&1*' 2!6' <5' .2*' 7(*3*4.&.!/4' /,' &4/.2*(' *3.&.*' !3' ,&6*' &3' &' 7/*.' A&3' *3.&<;!32*1' <5' .2*' 9 1 *4-*,/(A&(1' <5' .2*' ;!<*(&;!.5' /,' 4/<;*' ,(!*413' *37*-!&;;5' -.&=!&403'&41' &*-*4&3' A2/6' 2*' A/4' 4/.' 6*(*;5' <5' 2!3' &(.' <0.' ;!D*' &;;' A!.2' A2/6' 2*' -&6*' !4./' -/4.&-.' <5' 2!3' 6/1*3.5' &41' >//1' 4&.0(*' 2*' A&3' *4&<;*1' ./' 1*=/.*' 2!63*;,' ./' 2!3' 3.01!*3' A!.2/0.' ,*&(' /,' !4.*((07.!/4' *' ;!=*1' !4' .0(43' !4' /6*'8A2*(*' 2*' 7/33*33*1' &' 2/03*9' /(' /4' 2!3' *3.&.*' &.' /;&' /(' !4' &7;*3' A2*(*' 2*' 6&!4;5' (*3!1*1' /A!4>' ./' 2!3' A*&D' 2*&;.2

('!4' N' '2*' -/67;*.*1' .2*' 1!1&-.!-' 7/*6' !4' ,/0(' <*>04' 3*=*4' 5*&(3' 7(*=!/03;5' *4.!.;*1' .2*' 6 1 '#6 V 1 ' /4' &>(!-0;.0(*9' A2!-2' 2*' 1*1!F -&.*1' ./' &*-*4&3' 4' .2!3' .2*',!(3.' &.!4' 7/*6' /,' .2!3' D!41' +' 2&=*' &' 6&3.*(7!*-*' /,' &.!4' 7/*.(5' 2*' &0.2/(' .(*&.3' /,' /6&4' 203<&41(5' 041*(' !.3' ,/0(' -2!*,' <(&4-2*3' .!;;&>*' 8</!D'!9' 2/(.!-0;.0(*' 8!!9' .2*' <(**1!4>' /,' -&..;*' 8!!!9' .2*' D**7!4> /,' <**3' 8!=9' &41' 2&41;*3' &' 7(/3&!-' .2*6*' A!.2' .2/(/0>2' D4/A;*1>*' &41' -/3066&.*' &(.' ./>*.2*(' A!.2' &' ;/=!4>' *4.203!&36' &41' &,!4*' 3567&.25' ,/(' 4&.0(*' f 2*' A/(D' A&3' ,/041*1' 6&!4;5' /4' .2*' 7/*63' /,' *3!/1' &41' (&.03'<0.' &;3/' >!=*3'*=!1*4-*' /,' ,&6!F ;!&(!.5' A!.2' A(!.*(3' /4' &>(!-0;.0(*' &3' A*;;' &3' /,' !41*7*41*4.' &>(!-0;.0(&;' D4/A;*1>* g 66*1!&.*;5' &,.*(' ,!4!32!4>' .2*' 6 1 ' 2*' <*>&4' .2*' *7!-' 7/*6' /,' .2*' 9" ' A2!-2' 2*' 2&1' &;(*&15' 7(/6!3*1' ./' -.&=!&F 403' .3' &77*&(&4-*' A&3' ;//D*1' ,/(A&(1' ./' <5' &;' *10-&.*1' /6*' A!.2' *0.(&/(1!4&(5' &4.!-!7&.!/4' ,.*(' *;*=*4' 5*&(3' /,' 04(*F 6!..!4>';&</0(' 8,/(' ./' 2!6' -/67/3!.!/4' !4' >*4*(&;' A&3' &;&</(!/03' .&3D9' 2*' A&3' (*&15' A!.2' &' (/0>2' 1(&,.' /,' .2*' A2/;*' &41' 1*.*(F 6!4*1' /4' &' K/0(4*5' ./' (**-*' &41' 3!&' !4.*41!4>' ./' 37*41' .2(**' 5*&(3' .2*(*' !4' 7/;!32!4>' 2!3' A/(D' &41' &,.*(A&(13' ./' 1*=/.*' 2!63*;,' *4.!(*;5' ./' 72!;/3/725' .' .2*43' 2*' 6*.' -.&=!&403' 8A2/' 2&1' (*-*!=*1' !4' -' @U' .2*' .!.;*' /,' 0>03.03' 9' 2*' ;&..*(' !410-*1' 2!6' ./' (*.0(4' 2/6*' A!.2' 2!6' 'M' 7>!;' -/43*4.*1' <0.' ,*;;' !;;' &77&(*4.;5' ,(/6' &' 3043.(/D*' &.' *>&(&' 4' .2*' 3*&' =/5&>*' 2!3' -/41!.!/4' >(*A' A/(3*' &41' 3//4' &,.*(' ;&41!4>' 2*' 1!*1' &.' (041;3;06' @$3.' *7.*6<*(' $T' ' !3' (*6&!43' A*(*' <0(!*1' &.' &7;*3 .' A&3' .2*' 7/*.3' /(!>!4&;' !4.*4.!/4' .2&.' !4' .2*' *=*4.' /,' 2!3' 15!4>' <*,/(*' 2!3' A/(D' A&3' -/67;*.*1' .2*' .A*;=*' </!D3' /,' .2*' 89" ' 32/0;1' <*' -/43!>4*1' ./' .2*' ;&6*3' 4' .2*' *41' 2/A*=*(' 2*' <*:0*&.2*1' !.' ./" 2!3' ,(!*413' &41' -/67&4!/43' !4' &=. J(;03' 4,03' &41' ;/.!03' 0--&' /4' -/41!.!/4' .2&.' .2*5' 32/0;1' 4/.' 70<;!32' &45' 7&(.' /,' !.' 0.' <5' .2*' -/66&41' /,' 0>03.03' .2*5' >&=*' !.' ./' .2*' A/(;1' &,.*(' 30<6!..!4>' .2*' A/(D' ./' &' -&(*,0;' (*=!3!/4' &41' /4;5' (*F 6/=!4>' A2&.' A&3' 307*(,;0/03' A2!;*' (*,(&!4F !4>',(/6' &;' &11!.!/43' /,' .2*!(/A4 4' 37!.*' /,' !.3' !4-/67;*.*',/(6' .2*' A/(D' A&3' *4.203!&3.!-&;;5' A*;-/6*1' /4' !.3' ,!(3.' &77*&(&4-*' A2!-2' 2&1' *0-!.*1' .2*' 2!>2*3.' &4.!-!7&.!/43' &3' &' 4&.!/4&;' *7!-' /,' *:0&;' A/(.2' A!.2' .2*' 7/*63' /,' /6*(' 2!3' &77(/=&;' A&3' 10*' ./' !.3' 4&.!/4&;' 70(7/3*' .2*' 7/*.!-' >;/(!,!-&.!/4' /,' .2*' /(!>!4' /,' .2*' /6&4' 7*/7;*' !4' .2*' &1=*4.0(*3' /,' ! 4*&3' .2*' ,/041*(' /,' .2*' /6&43' .2(/0>2' 2!3' 1*3-*41&4.' /6.!;03' &41' !4' 7&(.!-0;&(' .2*' &4-*3./(' /,' .2*' !67*(!&;' 2/03*' /,' .2*' 0;!!' .2(/0>2' 2!3' 3/4' 3-J4!03' /(' ;0;03' 4' =!*A' /,' !.3' 70(7/3*';!..;*' 4/.!-*' A&3' .&D*4' /,' .2*' A*&D' 7/!4.3' !4' .2*' 7/*6' A2!-2' -&4' /4;5' !4' 7&(.' <*' *0-03*1' <5' .2*',&-.' .2&.' !.' ;&-D3' .2*' &0.2/(3',!4!32!4>' ./0-2*3' *

6&5 !41**1 &16!(*.2* &(. A2!-2 .2* 7/*. 2&3 32/A4 !4 6/0;1!4>. /.>*.2*(.2* =&3. 6&33 /, 6&.*(!&, -/;;*-.*1 A!.2 3/ 60-2 *,,/(./ ,(/6 .2* 7/*.!-* &41 7(/3* A(!.!4>3 /, (**D3 &41 /6&43 .2* *0-*:;*4-*3 /, .2* ;&4>0&>* &41 /, .2* 6*.(!-&, ,/(6 &41 .2* <*&0.5 /, 6&45 !41!=!10&, 7/(.!/43 <0./ !.-&44/.< 1*4!*1 .2&.! 4 &(.!3.!-/67;*.*4*33 &41 /(!>!4&;!.5 .2* ! ,&;;3 ,&(<*;/A .2* 6 1 4 7&(.!-0;&(.2* *41*&=/0(./ 7/0(.(&5 & (*&, 2*(! A&3 <*h /41 .2* -&7&-!.5 /, .2* >*4.;* &;6/3. A/6&4;5 -2&(&-.*(/, .2* 7/*. ! 4*&3!3 & .(0* 2*(/ 4*!.2*(!4 *410(&4-* 4/(!4 &-.!/4 0(.2*(.2* *41*&=/0(./ (!=&, /6*(!3 6&!4;5 ;!6!.*1 ./ !6!.&.!/4 2!3 !3 &77&(*4. 4/. /4;5 !4 -/04.;*33 3!4>;* !43.&4-*3 <0.& ;3/ !4 .2* 7;/. /, .2* A2/;* 7/*6 *(>!; /<=!/03;5 A!32*1 ./ 04!.* .2* *0-*;;*4-*3 /, .2* : :& &41 ' !4 /4* A/(D <5 1*3-(!<!4> !4 .2* ,!(3. 3!0 </!D3 .2* A&41*(!4>3 /, ,,!4*&3 &41 !4 .2* ;&3. 3!0 2!3 -/4,;!-.3 ,/(.2* .2(/4* /, &.!06

4 37!.* /, 6&45 ,&0;.3 A2!-2 A*(* 4/.!-*1 *=*4 !4 &4-!*4. .!6*3 *(>!; 2&3 (*6&!4*1 .2* 6/3. A!1*;5 (*&1 .2* 6/3. &16!(*1 &41 .2* 6/3. 7/70;&(7/*./ /, 2!3 4&.!/4 &41 4/ /.2*(A(!.*(2&3 *0*(-!3*1 30-2 &4 !4,;0*4-* /4.2* 30<3*:0*4.1*=*;/7F 6*4. /, .2* /6&4 ;!.*(&.0(* &41 ;&4>0&>* 2!3 (*6&(D &77;!*3 ./ 7(/3* &3 A*;; &3 7/*.(5 3 A&3 .2* -&3* A!.2 .2* 7/*63 /, /6*(&6/4> .2* (**D3 *(>!;3 A/(D3 &41 *37*-!&;5.2* 9 &3 &4&.!/4&;*7!- A*(* 03*1 1/A4 ./ .2* ;&.*3. .!6*3 ,/(3-2//; .*&-2!4> &41 &3 &<&3!3 /, 3-2//; >(&66&(2*5 A*(*!6!.&.*1 <5 &0.2/(3 7&(.!-0;&(;5 <5 *7!-&41 1!1&-.!-7/*.3 4 ;&.*(.!6*3 3!4>;* =*(3*3 &41 7&(.3 /, =*(3*3 # A*(* 03*1 ./ -/67/3* 4*A 7/*63 /, .2* 6/3. =&(5!4> -/4.*4.3 &41 ,!4&;;5 .2* 6/3. ,&6/03 3-2/;&(3 6&1* .2*6 .2* /<*-./ /, .2*!(3.01!*3 </.2 !4 =*(<&; &41 !4 >*4*(&; !4.*(7(*.&.!/4 /6* (*;!-3 /, .2*!(;&</0(3 &(* 7(*3*(=*1 !4 .2* 1!,*(*4.* -/;;*-.!/43 /, (*37*-!&;5 !4 .2&. -/67(*2*43!=* -/66*4.&(5 /4 2!3 -/;;*-.*1 7/*63 A2!-2 <*&(3 .2* 4&6* /, .2* -/66*4.&(!*3 /, .2* 73*01/" (/<03 /4 .2* &41 6 1 &41 /, !<*(!03 /4&.03 /4 .2* ! 2* 4&6* /, *(>!; A&3 &;3/ </(4* !4 &4-!*4. .!6*3 <5 &40 6<*(/, 7/*63 A2!-2 7&33*1 &3 .2* A/(D3 /, 2!3 5/0.2 <0. -&4 2&(1;5 &45 /, .2*6 2&=* <**4 2!3 -/6F 7/3!.!/43 8$9 .2* $ f/(6/(* -/(F (*-.;5 $ "[,/0(.**4 36&;7/*63 !4 !&6<!- &41 *;*>!&- 6*.(* 8@9 $ -8H .2* 61!>* I9 3077/3*1 ./ 2&=* <**4 A(!..*4 <5 *(>!; !4 2!3 3!0.**4.2 5*&(&6/3.!43!7!1 7/*6 8 9 2* $ .2* 3./(5 /, .2* .(&43,/(6&.!/4 /, -5;;& .2* 1&0>2.*(/, .2* *>&(!&4 D!4>* !4./ .2* <!(1 !(!3 # !3039 /<=!/03;5 -/67/3*1 <5 &4 !6!.&./(/, *(>!; &41 &.0;;03 8C9 2* 5 .A/ <0-/;!- 7/*63 8&9 .2* 5 7(/7*(;5 3/ -&;;*1 !67(*-&.!/43 /4 &--/04./, .2* ;/33 /, &4 *3.&.* -/43*:0*4. /4 .2* 7(/3-(!7.!/4 /, C$ &41 8?9 .2* . & ;&6*4.;/(& ;/3. ;/=* </.2 /, A2!-2 2&=* &3 ;!..* -;&!6 ./ <* .2* A(!.!4>3 /, *(>!; &3 /, .2* >(&66&(!&4 &;*(!03 &./ ./ A2/6 &;3/ .2*5 2&=* <**4 &3-(!<*1 8V9 2* & #$) -&;;*1 ,(/6 .2* 3&;&1 A2!-2 .2* 7*&3&4. !65;03 7(*7&(*3 !4 .2* *&(;5 6/(4!4> ,/(.2* 1&53 (*7&3. & -2&(&-.*(3D*.-2 &3 1!=*(.!4> &41 ;!,*;!D* &3 8?9 & 7/*6 1*(!=!4> !.3 .!.;* ,(/6 .2* $ /(/3.*33 A2/ 1&4-*3 &41 3!4>3 <*,/(* 2*(!44 !4=!.!4> .2* 7&33*(3 <5 ./ *4.*(2!3 ;&3. 7/*6 !3 !4 *;*>!&- 6*.(* f *(>!; ;!,* A&3 A(!..*4 <5 0*./4!03 ,(/6 *&(;!*(6*6/!(3 &41 " (/, *..;*" 32!7 3 " " ; = 1 ;&(*41/4 (*33 $RUT g *((!03 ;&--43 # /6&4 ,(**16&4 H A2/ /<.&!4*1 (*4/A4 -2!*,;5 <5 2!3 6*.2/1 /, .*&-2!4> /* 0*(-!3* .2* A!.3 /, 2!3 707!;3 3&53 0*./4!03 2* 03*1 ./ 7!. &>&!43.* &-2 /.2*(.2/3* /, .2* 3&6* &>* >*!=* .2*6 &30<*-. /A(!.* 07/4 &41 (*A&(1 .2* A!44*(A!.2 &7(!Q* >*4*(&;5 !4 .2* 32&7* /, &, !4* /((&(* -/75 /, 3/6* &4-!*4.&0.2/(l 8 (/, *..;*32!7 3 9 : 7 @N 9 * *10-&.*1 .2* >(&413/43 /, 0>03.03 &41 1!*1 041*(!<*(!03 * 1*=/.*1 2!63*;. /;!.*(&(5 &41 &4.!:0&(!&4 3.01!*3 (*3*6<;!4> .2/3* /, .2* ;*&(4*1 &((/ 203 2* A(/.* </!D3 5 (2 1 &41 7 / 51"$ * <0.2!3 6/3.!67/(.&4.A/(D A&3 *4.!.;*1 5 = (1" 2!3 6&5-;&!6 ./ <* .2* ,!(3. &.!4 ;*0!-/4 *=*(A(!..*4 . A&3 &((&4>*1 &;72&<*.!-&;;5 !.> >&=* !4.*(7(*.&.!/43 /, /<3/;*.* A/(13 &41 *0F 7;&!4*1 .2* 6*&4!4> /, .2* /;1*3.!43.!.0F .!/43 /, .2* .&.*!4-;01!4> !.3 (*;!>!/03 -03./63 *.- * /4;5 7/33*33 ,(&>6*4.3 /, &4 &<(!1>6*4. 6&1* <5 *3.03 # &41 &,0(.2*(&<(!1>6*4. /, .2* ;&..*(1*1!-&.*1 ./ 2&(;*6&>4* <5 &0;03 -&;*41&(/, /6&4 ,*3.!=&;3 1(&A4 07 <5 2!6 A&3 3*.07 !4 6&(<;* &. (3*4*3.* 4*&(/6* /, .2!3 .2*(* &(* 3/6* ,(&>6*4.3 3.!;; 7(*3*(=*1 -/4.&!4!4> .2* 6/4.23 /, &40&(5 ./ 7(!; !4-;03!=* &41 *-*6<*(

2*3*,(&>6*4.3&(*D4/A4&3.2*A , 2 " " W$ ' " ; ! 7 $$g f 4 .2* ;!<(&(5 /, (!4!.5 /;;*>* &6<(!1>* .2*(* !3 &3;&< /, 3./4* <*&(!4> .2* 4&6 * 1 + > ((+ 7(/<&<;5 .2* ;*0!-/F >(&72*(3 *7!.&72 &;3/ (/, *..;* 32!73 ; " 9 : 77 @N$"@CU g *(&-(46 8& "1 1*1!-&F .!/47(&-.!3*1<5.2* .&;!&4.(!<*3 A2*(*<5 !4 .!6*3 /, 3*=*(* 2&(132!7 & .2* 7(/F 10-.3 /, .2* 30--**1!4> 37(!4> .2* 6/4.23 /, &(-2 &41 7(!; A*(* -/43* (&.*1./ .2* >/13 ;;.2*,(0!.3&41 -&..;* A*(* &-.0&;;5 /,!*(*1 07 !4 3&-(!,!-* A2!;* .2* -2!;1(*4.2&. A*(* .2*4 </(4 &3 3//4 &3 .2*5 A*(* >(/A4 07 A*(* 1(!=*4 /0. /, .2* -/04.(5 &3 ,/(,*!.*1 ./ 2*&=*4 &41 (*:0!(*1 ./ 3**D &4*A 2/6* 2/;* >*4*(&.!/43 !4 .2!3 A&5 ;*,. .2*!(-/04.(5 .2/3* /, .2* &<!4* 3./-D <*!4>;*1 <5.2* &4!6&;3 3&-(*1./ &(3 [&<0;; &A//1F 7*-D*(/(&A/;, 4 /6* A2/3* /(!>!4 !3 .(&-*1 <&-D <5 6&45 ./ & .2* " 307*(!4.*41*1 .2*=/A &41 !.3,0;,!;6*4. 2* A&3 =/A*1 ,/(.2* ;&3.!6* !4 .2* 3*-/41 04!-' &(' @$U !=5 OO!!' $N <0. .2* =/A A&3 4/. ,0;,!;;*1 04.!;.A*4.5"/4* 5*&(3 &,.*(F A&(13 - $TV &41 $TC (OOO!!' CC &41 OOO!=CCg *(.06 6!3 8H .2* .0(4*(I H -2&4>*(!9 4 .&;!&4>/1/,(0!.3 A2/7(*3!1*1 /=*(.2* -2&4>!4> 5*&(*37*-!&;;5 /=*(.2* ,(0!.3 /, .2* *&(.2 A2*.2*(!4 /(-2&(13 /(!4 >&(1*43 *4-* 2* A&3 >*4*(&;;5 (*F 7(*3*4.*1 &3 & >&(F 1*4*(&41 & -0;.!=&F ./(/, .2* 3/!; A!.2 ,(0!.3 !4 2!3 ;&7 &41 & 7(04!4> D4!,* !4 2!3 2&41 &41 A&3 2/4/0(*1<5.2* -/04F .(5 ,/;D A!.2 .2* 7(/F 10-* /, .2*!(/(-2&(13 *.- 4 .2* <*;!* /, .2* 7*/7;* 2* 7/3F 3*33*1 .2* ,&-0;.5 /, -2&4>!4> 2!6 3*;, !4F ./ &;, 7/33!<;* 32&7*3 &41 .2*5 (*;&.*1 2/A <5 /4* /, 2!3 .(&43F ,/(6&.!/43 2* A/4 /6/4& ,/(2!3 A!,* 4 /6* 2!3 3.&.0*/, <(/4Q* 3.//1 !4 .2* 03-&4 :0&(.*(A2*(* & -/43!1*(&<;* .(&1* A*4./4 2* A&3 /4 .2!3 &--/04. (*>&(1*1 &3 .2* 7(/.*-./(/, <03!4*33 &41 *0-2&4>* &-(!,!-* A&3 /,,*(*1 ./ 2!6 !4 2!3 -2&7*;/4 .2* =*4.!4*/4 0>03.$ .2 f (/7*(.!03 !=@g *33*;3 4 !6 6*43* 406<*(/, =*33*;3 ,/(1!,,*(*4.70(7/3*3 !3 6*4.!/4*1 <5 .2* &4-!*4.3 .!3 !67/33!<;* A!.2!4 .2* 7(* 3*4. ;!6!.3 ./ 37*&D /, 6/(* .2&4 &-*(.&!4 406<*(/, .2* 6/3.!67/(.&4. 4 /(1!4&(5 ;!,* 60-2 03* A&3 6&1* /, 7/..*(5 A2!-2 A&3 3/6*.!6*3 /(4&6*4.*1 A!.2 7&!4.!4>3 # * &41 1 %* 0./ -;&5 <(/4Q* A&3 .2* ,&=/0(!.* 6&.*(!&; 2* 7(*-!/03 6*.&;3 6&(<;* &41 /.2*(3./4*3 30-2&3 7/(725(K" .(&=*(.!4* &;&<&3.*(&41 /450 A*(* &;3/03*1 &41 .2*=*33*;3 6&1* /, .2*3* &41 /, <(/4Q* A*(* /,.*4 &1/(4*1 A!.2 -&(=*1 A/(D 4 .2* *67;/56*4. /, >;&3 ,/(.2!3 70(7/3* @ 8 7 &;3/ 0 . -&4 2&(1;5 <* 3&!1 .2&. A//1 A&3 60-2 !4 03* *33*;3 !4.*41*1 ./ 2/;1 A!4* /!; 3&;. 6*&. 3&;, !32 /;!=*3 -/(4 &41 .2* ;!D* A*(* >*4*(&;;5 /, -;&5 2* ;&(>*3. /, .2*6 A&3 %2* (8 (g /(8 K&. 9 & <0.. !4 .2* ,/(6 /, & >/0(1 03*1 ,/(3./(!4> /!; &41 A!4* 2!3 =*33*; A2!-2 A&3 ;!4*1 A!.2 7!.-2 A&3 /,.*4 3/;&(>* .2&. & 6&4 -/0;1 *&3!;5 >*. !43!1* !. .A&3 /4* /, .2*3* <0..3 !4 A2!-2 ! >*4*3 6&1* 2!3 &</1* 2*5 A*(* >*4*(&;;5 ;*. !4./ .2* ,;//(/, .2* -*;;&(&41 -/04.*1 &3 !6 6/=&<;* ,0(4!.0(* 2* (**D / &41 .2* /6&4 A*(* 36&;;*(=&.3 /, .2* 3&6* D!41 03*1 ,/(3./(!4> 3&;." 6*&.3 ,!>3 -/(4 *.- /(70(7/3*3 /, 3&;* &41 /, 03* .2* A!4* &41 /!;A*(* 7&33*1 ,(/6 .2* !4./ .2* ((&41 .2* 8 (2*3* A*(* =*33*;3 A!.2 .A/ 2&41;*3 &41 & 3;!6 </15 7/!4.*1 &. .2* ,//. 2*5 A*(* *!.2*(<0(!*1 07 ./ .2* 6!11;* !4 .2* >(/041 /(3*. 07 3;&4.!4> &>&!43. .2* A&;;8,!> $ 4/3 @N"@ ", !> @ 2* A*(* 37*-!&;;5 03*1 <5 .2* /6&43 ,/(.2* 3./(&>* /, (**D A!4*3 !4* &41 /!; A*(* &;3/ *37*-!&;;5 !4 .2* -/04.(5 70. !4./ ;*&.2*(<&>3 8 (* &. &3 !3 .2* -&3* 4/A !4 .2* &3. &41 !4 .2* 3/0.2 /, 0(/7* 2* <&> A&3 6&1* <5 3*A!4>& 406<*(/,3D!43 ./>*.2*(&41 A&3 .&77*1 <5 04.5!4> /4* /, .2* ;*>3 /(1(&A!4> &41 2/;1!4> A&.*(.2*5 03*1 .2* (: / (8 &. " -&((!*1 /4 .2* 2*&1 /(32/0;1*(3 2!3 A&3 & =*33*; A!.2 & 32/(.4*-D &41 ;&(>* </15 /,.*4 A!.2 .2(** 2&41;*3 .A/ 36&;;*(/4*3 ,/(-&((5!4> &41 /4* <*2!41 ,/(1(&A!4> &41 7/0(!4> /0. 8,!> $ 4/3 $?$U9 2* ' 1:" 8 &. ' 1 " /(<1 " A&3 &

A!4*"K&(' .' 2&1' &' 4&((/A' 4*-D' (&.2*(' &' A!1*' 6/0.2' &41' &' 2&41;*' 8,!>' $' 4/' C9' .' A&3' 244>' 07' &3' &' 3!>4' !4' ,(/4.' /,' A!4*' 32/73' &41' A&3' 70.' <*,/(*' .2*' >0*3.3' &.' .&<;*' 2*' , / , ' /(' # ' A&3' 03*1' ,/(' /!;' 8,!>' $' 4/' 9'' .2*' ! ' /(' ! ' 8,!>' $' 4/' V9' ,/(' ,(&>(&4.' /!4.F 6*4.3' 2!3' =*33*;' A&3' 4&6*1' ,(/6' .2*' 6&.*(!&;' /,' A2!-2' !.' A&3' 030&;;5' 6&1*' /.2' .2*' , ' &41' ! ' 2&1' 4&((/A' 4*-D3' 3/' .2&.' .2*' ;!:0!1' (&4' /0.' !4' 1(/73' 2*' ! $' A&3' (/041' &.

37//43' A*(*' 03*1' . $' $' ,!>' 9' &3' A*;;' &3' &(!/03' 3/(.3' /,' -073' ." / $' ,!>' $' 4/3' $N' BV9' 2*3*' (*3*6<;*1' /0(' .*&' &41' -/,,**' -073' <0.' 2&1' &' 60-2' 2!>2*(' 2&41;*' (!3!4>' ,&(' &</=*' .2*' (!6' &41' -/4F .&!4*1' &' 1*,!4!.*' 6*&30(*' (!4D!4>"' =*33*;3' A*(*' 6&1*' !4' .2*' ,/(6' /,' </A;3' <*&D*(3' &41' 2<(43' /' .2*' ,!(3.' -;&33' <*F ;/4>*1' .2*' ,!&.' & $' /(' 3&0-*(' A!.2/0.' 2&41;*' /(' <&3*' -/((*37/41!4>' ./' .2*' /6&4' ' >*4*(&;;5' 03*1' !4' 3&-(!,!-*3' 8,!>' $' 4/3' $' 9'' .2*' ! " ' &' ;/4>' 1**7' =*33*;

' ' ' ' ' ^'
8 &24 3' = " "1' "' ', " (!'Q '&(,.4-2-K!' &,'!'!;9
$' f' (3 ' ' -' C"U' J (4' R' -' T' 2/;A.,&' $N' H! (L' $$' ("'
$@' " (H L' $ "$V' (' $?' ' $U' (: ' $R' " ' $T' 3 ' @N"@ ' (4 '
@C' ' fG' ' @?" N' H " (/ ' @' ' ' (' C' 1H " ' V' ("'
?' L GL' U' (' R' T' 4&6*' 04D4/A4' CN' " ' C$' !: -

.2*' ,//.' &41' .2*(*,/(*' (*:0!(*1' &' 3.&41' ./' 3077/(.' !.

2*' >*4*(&;' .*(6' , ' 8 &.' " ' /(' " 1' A&3' 03*1' ./' 1*4/.*' .2*' =*33*;3' !4' A2!-2' A!4*' &3' 6!0*1' A!.2' A&.*(' &.' 6*&;F .!6*3' 8,!>' ' 4/' (8*' " ' $ (' (' $ - ' ' 2*5' A*(*' 6/1*(&.*;5' ;&(>*' A!.2' A!1*' 4*-D3' &41' </1!*3' &41' .A/' 2&41;*3' /6*.!6*3' .2*5' 2&1' &' 7*1*3.&;' 3/6*.!6*3' .2*5' A*(*' 7/!4.*1' /(' (/041' <*4*&.2' !4' A2!-2' -&3*' .2*5' (*:0!(*1' &' 3077/(.' 8257V (X X*(#/49' /(' ;&1;!4>' &41' 7/0(!4>' /0.' .2*' A!4*

A!.2/0.' 2&41;*3' 3/' -&;;*1' ,(/6' !.3' ;!D*4*33' ./' &' </&.*' &41' .2*' , ' 8 &.' " 1' A!.2' 2&41;*' &41' <&3*' 8,!>' $' 4 3' ' &41' R9' 6/4>' .2*' <*&D*(3' 6&5' <*' 6*4.!/4*1' .2*' , M ' 8 &.' " @ 1' &..(!<0.*1' ./' *(&-;*3' 8,!>' $' 4/3' C"U9' 2!3' A&3' &' ;&(>*' -07' /(!>!4&;;5' /,' A//1' &41' 03*1' <5' 32*72*(13' 3/6*.!6*3' A!.2' &' (/041' 3/6*.!6*3' A!.2' &' ,!&.' </../6' 4/.2*(' A&3' .2*' , ' ." 1' 7*-0;!&(' ./' 4B303' 8,!>' $' 4/' $@9' A!.2' &' 2!>2' <&3*' &41' 7(/K*-.!4>' 2&41;*3' 2*' , " ' 9" " #$' ,!>' $' 4/' $$9' A&3

tall, slightly contracted at its sides, and with slender handles reaching from the rim to the foot [Macrobius, *Sātūrnālia* v 21]: the *kĭbōrĭŏn* (*cĭbōrĭum*) resembled the husks of the Egyptian bean. The class of drinking horns included the *rhўtŏn* (fig. 4), with its mouth shaped like the head of an animal.

As may be seen from the names, the Romans borrowed most of their drinking vessels from the Greeks. They were generally fitted with silver; and, during the imperial times often ornamented with finely cut gems.

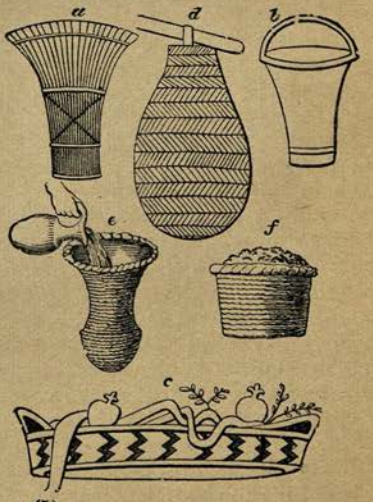
It is unnecessary to enumerate the various vessels used for washing, cooking, and eating, the characteristics of which were not strikingly different from our own. But we may observe that for domestic purposes of all kinds the ancients used basket work of canes, rushes, straw, and

(2) * VESSELS OF GLASS OR TERRA-COTTA FROM POMPEII.
(Overbeck's *Pompeii*, p. 402, fig. 249, ed. 3=fig. 250, ed. 4.)
a and *b*, *amphŏræ*. *c*, two glass *lagœnæ* in terra-cotta *incĭtĕga*. *d*, *e*, *f*, wine-glasses. *g*, wine-strainer. *h*, glass funnel, *infundibŭlum*. *i*, cup and saucer. *k*, oil-flask. *l*, small flask. *m*, cup. *n*, wine-taster. *o*, jug. *p*, gourd-shaped bottle. *q*, vessel with pointed base. *r*, strainer. *s*, small vase for unguents. *t*, strainer.

used for holding the wool used in weaving and embroidery: the low *kănĕŏn*, or basket of round or oval shape (fig. 5, *c*), for bread and fruit. The Athenian maidens carried *kănĕă* on their heads at the Panathenaic procession. (*See* CANEPHORI.) For baskets of other shapes, see fig. 5, *d*, *e*, *f*.

(3) BRONZE LADLES (*trŭa*).
(From Pompeii.)

(4) GREEK DRINKING-HORNS (*rhўtŏn*).
(Panofka, *Griechische Trinkhörner*.)



(5) BASKETS FROM GREEK VASES.
(Guhl and Koner, fig. 203.)

leaves, especially palm leaves. The *kălăthŏs*, made in the form of a lily (fig. 5, *a* and *b*), was

Vesta. The Italian, particularly the Latin, goddess of the hearth and of its fire,

-/((*37/41!4>' !4' 2*(' 4&6*' &3' A*;;' &3' !4' 2*(' 4&.0(*' ./' .2*' (**D' ! 8 ' '8#GY 9' !D*' *3.&' <*3!1*3' 2*(' 37*-!&;' -0;.' /4' .2*' 2*&(.2' /,'ṅ*=*(5' 2/6*' 32*' A&3' &;3/' A/(F 32!77*1' <5' .2*' .&.*' 2!3' A/(32!7' A&3' !4./10-*1' <5' ..6&' ,(/6' &=!4!06' A2!.2*(' B4*&3' 2&1' </0>2.' .2*' , " ' &41' .2*' 3&-(*1' ,!(*' ,(/6' (/5' *4-*' !.' A&3' .2&.' /6&4' -/430;3' &41' 1!-.&./(3' /4' .&D!4>' 07' &41' ;&5!4>' 1/A4' .2*!(' /,,!-*' 3&-(!,!-*1' !4' .2*' .*67;*' /,' *3.&' &.' &=!4!06' .' A&3' -03./6&(5' !4' .&;5' &3' !4' (**-*' ,/(' .2*' -/;/4!*3' ./' D!41;*' .2*' ,!(*' /,' .2*!(' /A4' *3.&' &.' .2*' 2*&(.2' /,' .2*' 6/.2*(' -!.5

2*' &4-!*4.' (/041' 3' ' *3!&' A2!-2' 3*(=*1' &3' .2*' -*4.(&,' 7/!4.' /,' .2*' -!.5' A&3' <0!;.' <5' 06&' 4' !.3' 4*!>2</0(2//1' A&3' %.2*' 3/' -&;;*1' " ' = ' .2*' &</1*' /,' .2*' =!(>!4' 7(!*3.*33*3' /,' .2*' >/11*33' .2*' *3.&;3' f*0-&=&.*1' !4' $RR "C" !11;*./43' 7 " ' ' " " ' 7 '!' NU" @Tg' *(*' .2*' >/11*33' A&3' A/(32!77*1' 4/.' !4' .2*' ,/(6' /,' &' 3.&.0*' <0.' 041*(' .2*' 356</;' /,' .2*' *.*(4&;' ,!(*' 2!-2' !.' A&3' .2*' -2!*,' 10.5' /,' .2*' *3.&;3' ./' D**7' &;!>2.' 4' *=*(5' $3.' &(-2' !.' A&3' (*4*A*1' ,' !.' A*4.' /0.' /,' !.3*;,' &' >(*&.' 4&.!/4&;' 1!3&3.*(' A&3' 2*;1' ./' 2&=*' /--0((*1' &41' .2*' >0!;.5' *3.&;' A&3' 3-/0(>*1' <5' .2*' 7/4.!,*0' 2*' ,!(*' -/0;1' /4;5' 2*' (*D!41;*1' <5' &' <0(4!4>' %>;&33' /(' <5' .2*' 7(!6!.!=*' 6*.2/1' /,',(!-.!/4' <5' </(!4>' &' 7!*-*' /,' A//1',(/6'4',(0!.'.(**' G /((*37/41!4>' ./' .2*' < ' &41' " ' /,' .2*' 1/6*3.!-' 2*&(.2'".2*(*' A*(*' &--/(1!4>' ./' ;&.*(' 03&>*' .2' " ' /,' .2*' .&.*' !4' .2*' .*67;*' /,' *3.&" &41' 3!6!;&(;5' /4' .2*' .*67;*"2*&(.2' &' &-(!,!-*' A&3' /,,*(*1'1&!;5' -/43!3.!4>' /,' .2*' 7;&!4*3.',/(6'/,',//1'!4' &' 3!67;*' =*33*;' /,' -;&5' 2*' 1&!;5' 70(!,!F -&.!/43' -/0;1' /4;5' <*' 6&1*' A!.2',;/A!4>' A&.*('A2!-2'.2*' *3.&;3'-&((!*1'!4'7!.-2*(3' G07/4' .2*!(' 2*&13' ,(/6' .2*' ,/04.&!4' /,' >*(;&' /(' /,' .2*' 03*3' 5'1&5'*=*(5'/4*' 2&1'.2*' (!>2./,'&16!33!/4'./'&;'.2*'.*67;*' 3&=*' /4;5'.2&.'7&(.'!4'A2!-2'.2*' &41'/.2*(' 653.!-'(*;!-3' *(*'D*7.'A2*(*' .2*' *3.&;3' &;/4*' 2&1' .2*' (!>2.' ./' *4.*(' A&3' /4;5'<5'!4!>2.'.2&.'6*4'A*(*'*0-;01*1 3'>/11*33'/,'.2*' 3&-(*1',!(*'/,'.2*'2*&(.2' !4'*=*(5'2/03*'&41',/(' .2*' *!.5'!4' >*4*(&;' *3.&' A&3' &;3/' .2*' >/11*33' /,'*=*(5'3&-(!F ,!-!&;' ,!(*' *4-*' 32*' A&3' A/(32!77*1' A!.2' &403' &.' *=*(5' (*;!>!/03' 3*(=!-*' &403' <*!4>'!4=/D*1'&.' .2*' /7*4!4>' *3.&' &.' .2*-;/3*' *(' /A4',*3.!=&;' .2*' = ' A&3' D*7.' /4' 0;5' T.2' 2*' 6&.(/43' /,' .2*' ./A4' A&;D*1' <&(*,//.*1' !4' 7(/-*33!/4' ./' 2*(' .*67;*' ./' !67;/(*' .<Y' <;*33!4>' /, .2*' >/11*33',/(' .2*!(' 2/03*2/;13' &41' ./' /,,*(' 3&-(!,!-*' ./' 2*(' !4' (01*' 1!32*3' !4' (*6*6<(&4-*' /,' .2*' .!6*' A2*4' .2*' 2*&(.2' 3*(=*1' >*4*(&;;5',/(' .2*' <&D!4>' /,' <(*&1' 2*' 6!;;*(3' &41' <&D*(3' &;3/' D*7.' 2/;!1&5' 2*' 6!;;3' A*(*' -(/A4*1' &41' .2*' &33*3' *67;/5*1' !4' .2*6' 2&1' >&(;&413' &41' ;/&=*3' 3037*41*1' &</0.' .2*!(' 4*-D3' 2*' A/(32!7' /,' *3.&' 30(=!=*1' ./' .2*' ;&3.' 1&53' /,' 7&>&4!36' &41' A&3' &</;!32*1' <5' (&.!&4' !4' R@')' ;.2/0>2' .2*(*' A&3' 4/' !6&>*' /,' .2*' >/11*33' !4' .2*' &-.0&;' .*67;*3' 2*(' 3.&.0*3' A*(*' 4/.' 04-/66/4' &.' /6*' !4' ;&.*(' .!6*3' !D*' .2*' (**D' *3.!&' 32*' &3' (*7(*3*4.*1' 3/6*.!6*3' &3' 3.&41!4>' 3/6*.!6*3' &3' 3!..!4>' -/67;*.*;5' -;/.2*1' &41' =*!;*1' A!.2' -2&;!-*' ./(-2' 3-*7.(*' &41' 7&;;&1!06' /(' /&.' 3*' !

*3.&;' & 1 " ' ' *3.&;' !(F >!439' G 2*' 7(!*3.*33*3' /,' *3.&' .' /(&*' .2*!(' 406<*(' A&3' &.' ,!(3.' ,/0(' <0.' 2&1' &;(*&15' <**4' !4-(*&3*1' ./' 3!0' 10(!4>' .2*' ;&3.' 5*&(3' /,' .2*' D!4>3' =*(5'>!(;' 7/33*33F !4>' .2*' 4*-*33&(5':0&;!,!-&.!/4' A&3' ;!&<;*' ./' <*' -&;;*1' /4' ./' 041*(.&D*' .2*' 10.5' &41' 4/' *0*67.!/4' A&3' >(&4.*1' *0-*7.'07/4'=' :' 3.(!-.' -/41!.!/43' 2*' /,,!-*' A&3' -/4,!4*1' ./' >!(;3' /,' 4/.' ;*33' .2&4' 3!0' &41' 7/.' 6!(*' .2&4' .*4' 5*&(3' /,' &>*' A!.2/0.' 7*(3/4&;' <;*6!32' /,',(**' (*37*-.&<;*',&6!;!*3' A2/3*' 7&(*4.3' A*(*' 3.!;;' &;!=*' &41' (*3!1*4.!0' .&;5' 2*' -2/!-*' A&3' 6&1*' <5';/.' /0.' /,' &' 406F <*(' /,' .A*4.5' 4/6!4&.*1' <5' .2*' 7/4.!,*0' 2*' =!(>!4' &77/!4.*1' ./' .2*' 7(!*3.;5' /,,!-*' !6 6*1!&.*;5' :0!..*1' 2*(' ,&.2*(3' &0.2/(!.5' &41' *4.*(*1' .2&.' /,' .2*' >/11*33' ,.*(' 2*(' !4&0>0(&.!/4' <5' .2*' 7/4.!,*0' 32*' &3' .&D*&' !4./' .2*' *3.&' 2*(' ,0.0(*' 7;&-*' /,' &</1*' A&3' 10;5' &..!(*1' &41' 32/(4' /,' 2*(' 2&!(' 2*' .!6*' /,' 3*(=!-*' A&3' <5' ;&A' .2!(.5' 5*&(3' .*4' /,' A2!-2' A*(*' 3*.' &7&(.' /(' ;*&(4!4>' .*4' /(' 7*(,/(6!4>' &41' .*4' /(' .*&-2!4>' .2*' 10.!*3' .' .2*' *41' /,' .2!3' .!6*' ;*&=*' A&3' >(&4.*1' ./' .2*' *3.&;3' G/ ;&5' &3!1*' .2*!(' 7(!*3.2//1' (*.0(4' !4./' 7(!=&.*' ;!,*' &41' 6&((5' 2*5' 3*;1/6' .//D' &1=&4.&>*' /,' .2!3' 7*(6!33!/4' 2*5' *(*' 041*(' .2*' -/4.(/;' /,' .2*' 7 4.!,*] ' A2/' !4' .2*' 4&6*' /,' .2*' >/11*33' *0*(-!3*1' /=*(' .2*6' 7&.*(4&;' &0.2/(!.5' *' &16!4!3.*(*1' -/(7/(&;' -2&3.!3*6*4.*' !,' .2*5' 4*>;*-.*1' .2*!(' 10.!*3' 6/(*' 7&(.!-0;&(;5' !,' .2*5' &;;/A*1' .2*' 3&-(*1',!(*' ./' >/' /0.' &41' !,' &45' /4*' /,' .2*6' =!/;&.*1' 2*(' =/' /,' -2&3F .!.5' 2*' 2&1' 2*(' -&((!*1' /4' &' <!*(' ./' .2*' R ' 8.2*' ,!*;1' /,' .(&43>(*33!/49' 4*&(' .2*' /;;!4*' &.*' <*&.*4' A!.2'(/13'&41' !6 60(*1'&;!=*' *(' 3*10-*(' A&3' 3-/0(>*1' ./' 1*&.2' /' 6&4' A&3' &;;/A*1' ./' *4.*(

.2*!(' &7&(.6*4.3' 2*!(' 3*(=!-*' -/43!3.*1' !4'!4&!4.&!4!4>'&41'D**7!4>'70(*'.2*'*.*(4&;' ,!(*' !4' .2*' .*67;*' /,' *3.&'A&.-2!4>' .2*' 3& (*1' 32(!4*3' 7*(,/(6!4>' .2*' 3&-(!,!-*3' /,,*(!4>'.2*' 1&!;5'&41'A2*4'4*-*33&(5'.2*' 37*-!&;'7(&5*(3',/('.2*'A*;,&(*'/,'.2*'4&.!/4' &41'.&D!4>'7&(.'!4'.2*',*&3.3'/,' *3.&' * 03' &41' 14 ' ?&' 2*5'A*(*'1(*33*1'*4.!(*;5' !4'A2!.*'A!.2' '-/(-6*."32&7*1'2*&1"<6!1' & " $ ' &41' /(4&6*4.*1' A!.2' (!<&413' W '3037*41*1',(/6'!.'&41'&.'&'3&-(!,!-*' -/=*(.'A!.2'&'A2!.*'=*!;' f-&;;*1'.2*' 2' ' 2!3'A&3'&3/(.'/,'2//1'6&1*'/,'&' 7!*-*'/,'A2!.*'A//;;*4'-;/.2'A!.2'&'70(7;*' </(1*('=*-.&4>4;&('!4',/(6' .'A&3',/;1*1' /=*(' .2*' 2*&1'&41',&3.*4*1'!4',(/4.' <*;/A' .2*'.2(/&.' <5'&' '8 *3.03'7' CN'*1

' ' ' S

8 /(.(&!.'3.;;.0*'/,'/4*'/,'.2*-2!*',' *3.&;3'/,'.2*'.!6*'/,' !"&& ;'/(' &1(!&4'32/A!4K,' .2*'3&-(*1'=*3.6*4.' -&;;*1'.2*

8 ;!K;;*('':0/.*1'!4' !11;*./4 3'7 '!' @N9g' 2*'-2!*,' 7&(.'!4'.2*'3&-(!,!-*3'A&3'.&D*4' <5'.2*'*;1*3.'.2*' 1 ' ' -

2*' *3.&;' !(>!43'*4K/5*1'=&(!/03'1!3"' .!4-.!/43'&41'7(!=!;*>*3' 2*4'.2*5'A*4.' /0.'.2*5'A*(*' &--/67&4!*1'<5'&';!/./('./' A2/6'*=*4'.2*'-/430;'>&=*'7;&-*'&.'70<;!-' >&6*3'.2*5'2&1'&7;&-*'/,'2/4/0(".2*5'A*(*' 041*('&'>0&(1!&4'&41'A*(*',(**'./'1!37/3*'/,' .2*!('7(/7*(.5'.2*5'>&=*'*=!1*4-*'A!.2/0.' .2*'-03./6&(5'/&.2'.2*5'A*(*'/4'&--/04./,' .2*!('!4-/((07.!<;*'-2&(&-.*('*4.(03.*1' A!.2'!67/(.&4.'A!;;3'&41'70<;!-'.(*&.!*3" 1*&.2'A&3'.2*'7*4&;.5',/('!4K0(!4>'.2*!(' 7*(3/4" .2/3*'A2/6'.2*5'*3-/(.*1'A*(*' .2*(*<5'7(/.*-.*1',(/6'&45'&33&0;.' /' 6**.'.2*6'<5'-2&4-*'3&=*1'.2*'-(!6!4&;' A2/'A&3'<*!4>';*1'&A&5'./'704!32 6*4.' &41'./'.2*6'&3'./'6*4'/,'1!3.!4>0!32*1

6*(!.'A&3'&33!>4*1'.2*'2/4/0(' /,'<0(!&;' !4'.2*' /(06

*3.!<,!;06' 4'*4.(&4-*"-/0(.'<*,/(*'& /6&4' ' # '

.,!(4!' f ' &.! 'A/(1'7(/7*(;5'6*&4F !4>' /;1' 3/;1!*(3g' 0(!4>'.2*' ;&.*(' *"' 7.!<;!-&4' 7*(!/1'&41' 041*(' .2*' 67!(*'.2*' .*(6'A&3'&77;!*1'./'.2/3*'A2/'&.'.2*'*41' /,'.2*!(' .!6*'/,'3*(=!-*' (*.!(*1',(/6'.2*' ;*>!/4' 2*5'A*(*'D*7.'A!.2'.2*' &(65' 041*(' .2*'3.&41&(1'041*(' A2!-2'.2*5'A*(*' .&D*4'./'.2*'6!;!.&(5'-/;/4!*3'&77/!4.*1',/(' .2*6'&41'&>&!4'3*(=*1'.2*(*',/('&4'!41*F ,!4!.*'7*(!/1' #$ '1 # '

Q!;;J.!!' /6&4'=.*(&43'A2/'&.'.2*' *41'/,'.2*!(' 7*(!/1',' 3*(=!-*'(*.!(*1',(/6' .2*';*>!/4'<0.'A*(*'D*7.'./>*.2*('041*('&' 3.&41&(1'& - '07'./'.2*'.!6*'/,'.2*!(' ,!4&;'1!36!33&;' 2*5',/(6*1'<5'.2*' 3!1*'G /,'.2*';*>!/4'&'3*;*-.'-/(73';!D*'.2*' ' /,'*&(;!*(' .!6*3' 2*5'A*(*'*0*67.',(/6' /(1!4&(5'3*(=!-*' &41'/4;5'</041'./' .&D*' 7&(.'!4'& .0&;',!>2.!4>' f 2*5'6&5'<*' <(!B5'1*3-(!<*1'&3'.2*' /;1*3.' -;&33'/,' " '&41'.2*';&3.'./'2*'3066/4*1'./' .&D*'.2*',!*;1g

0!;;06' 2' &.!4'4&6*',/(' &',/0("' -/(4*(*1',;&>'&..&-2*1'./'&'-(/33"7/;*'&41' -&((!*1'B'.2*' - ' # ' $)&' ,!>' ' =*(5'3:0&1(/4' # '&41'7(/F <&<;5'*=*(5'1*.&-26*4.'/,'&'<:15'/,'.(//73' A2!-2',/(6*1'&3*7&(&.*'-/66&41'2&1'& (*1'A2!.*'/('70(7;*' - ' /,'.2!3'D!41' &41'2*4-*'A*(*'.2*63*;=*3'-&;;*1'&' - ' /('3/6*.!6*3'&' - I' 2*';&..*('A/(1' 2/A*=*(',(/6'.2*'*41'/,'.2*' (1'-*4.0(5' '3!>4!,!*3'&'3:0&1(/4',' &=&;(5' .' /6*'&'(*1',;&>'A&3'1!37;&5*1'/4'.2*' &7!./;' 10(!4>'.2*' 1*;!<*(&.!/43'/,'.2*' ' " ' &41'A&3'!4'.!6*'/,' A&('7;&4.*1'&3'.2*'3!>4&;',/('<&..;*'/4' .2*'>*4*(&;3'.*4.'/('.2*'&16!(&;3'32!7' = - '3*(=*1'&;3/'&3'6&(D3'/,'1!3.!4-.!/4' ,/('.2*'2!>2*('/,,!-*(3 !&' 77;&' ' -

!&./('8H 6*33*4>*(I9' ' 30</(1!4&.*' /,,!-!&;'& ' " ' ' '*67;/5*1'<5'.2*' /6&4'6&>!3.(&.*3',/('3*41!4>'&'6*33&>*' /('&306 6/43'/('/('*0*-0.!4>'&4'&((*3.' 2*'-/430;3'&41'7(&*./(3'2&1'7(/<&<;5' .2(**' -' /,' 'E .2*'.(!<04*3' 2&1'&37*-!&;' '&3'&;3/'2 1'.2*' @ ' '&41'.2*'/,,!-*(3'A2/'".//D'* .2*!('7;&-*'041*('.2*' 67!(*' ' .2*' ' '*' &;3/'.2*'&*1!;*3'.2*' 2')' ' 41'.2*' ' 1 " ' 2*5'&;3/'&77*&('!4'-/44*0!/4' A!.2'7(/=!4-!&;' >/=*(4/(3'&41'3&-*(1/.&;' </1!*3

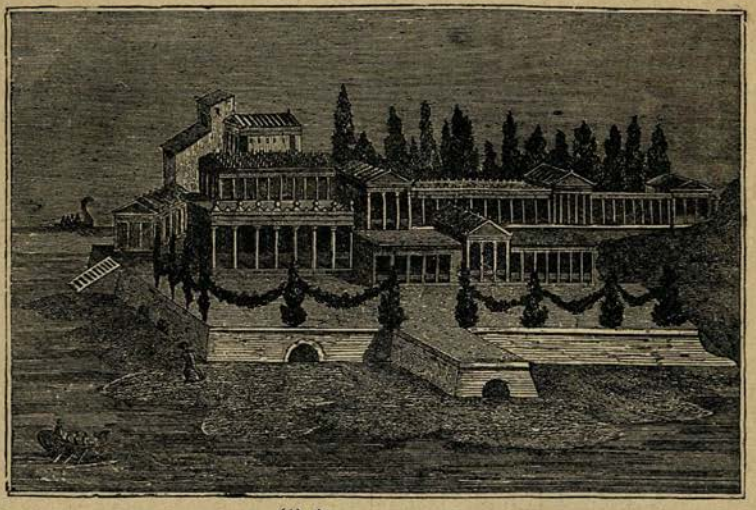
!-./(' '"
!-./(.&' 2*' /6&4'>/11*33' /,'=!-./(5'
'0
!-./(!403' #6 " ' ' ' &.!4'
(2*./(!-!&4'</6'!4' ,(!-&'A2/'&</0.' .2*'
6!11;*' /,' .2*' C.2' -*4.0(5' .&0>2.' &.'
/6*' A2*(*' .' *(/6*' *4K/5*1' 2!3' !4F
3.(0-.!/4' 4'2!3' /;1' &>*' 2*' <*-&6*' &' -/4F
=*(.' ./' 2(!3.!&4!.5' &41' 3*(=*1' !.3' -&03*'
'<5' 2!3' A(!.!4>3' ' *3!1*3' 406*(03' .2*/F
;/>!-&;'A/(D3'2*'!3'.2*'&0.2/('/,'&'-/67(*F
2*43!=*' .(*&.!3*' 6&!4;5' /4' 6*.(*3' -&;;*1'
'6 '!4',/0('</!D3' !3'4&6*'
!3' &;3/' >!=*4' ./' 3/6*' /.2*(' >(&66&.!-&;'
A(!.!4>3'&3'A*;;'&3'3/6*'7/*63'/4'<!<;!-&;'
30<*-.3" <0.' !.' !3' 1/0<.,0;' A2*.2*(' .2*5'
&(*' ,(/6' 2!3' 2&41' ' -/66*4.&(5' /4'
!-*(/3'A/(D'5 ''" " 'A2!-2'03*1'
./'<*' &3-(!<*1' ./' 2!6' A&3' 6/(*' 7(/<&<;5'
-/67/3*1'<5'/4*' &<!03' &(!03' !-./(!403
!-03' '&.!4' A/(1' /(!>!4&;;5' 6*&4F
!4>'&'2/03*'&41' &,.*(A&(13'&'-/;;*-.!/4'/,'
2/03*3' 4'&'./A4' 'A&3'&'3.(**.'/(
3*-.!/4'/,'.2*'./A4'!4'.2*'-/04.(5'&'(0(&;'
-/6604!.5'-/67/3*1'/,' ,&(63';5!4>'-;/3*'
./>*.2*('A!.2'.*67;*3'&41'&;.&(3'/,'!.3'/A4'
&'-/66/4'-2*3.'&41'&440&;;5'*;*-.*1'/=*(F
3**(3' # 1 '/(' './' A2/6'A&3'
&33!>4*1'.2*'-&(*'/,'.2*'-0;.'<0!;1!4>3'&41'
;/-&;' 7/;!-*' 2*' (*;!>!/03' -*4.(*' /,' .2*'
3*7&(&.*'./A432!73' 'A&3'.2*'
8-(/33A&59'A!.2'.2*'-2&7*;'/,'.2*' ' '
'*(*-.*1'.2*(*'!4'A2/3*'2/4/0('
A&3'&440&;;5'2*;1'.2*',*3.!=&;'/,'.2*'$ 2
'0>03.03' 1!=!1*1' /6*' !4./'
,/0(.**4'1!3.(!-.3'&41'@?V '&41'/(1&!4*1'
.2&.' ,/0(' 6&>!3.(&.*3' 32/0;1' <*' -2/3*4'
&440&;;5',(/6'*=*(5' 7&(.;5'./'307*(F
!4.*41' .2*' -0;.' /,' .2*' 7&(.;5'./'
7*(,/(6'.2*'/, -!&;'10.!*3'/,'-!.!Q*43' 2!3'
&((&4>*6*4.'30(=!=*1'A!.2'&',*A' -2&4>*3'
.!;;'.2*'1*-;!4*'/,'.2*' 67!(*
>;;*3' 8H A&.-26*4I9' 4'/(>&4!Q*1'
6!;!.&(5'</15'/,'3*=*4'-/2/(.3'*&-2'/,'$ NNN'
6*4'&77/!4.*1'<5' 0>03.03'./'307*(!4.*41'
.2*',!(*6*4'&41'4!>2."7/;!-*'/,' /6*' # '
3 8+!
;>; 3' 8H' 4!>2."A&.-2'I9' 2*' 4&6*'
>!=*4'&.' /6*'./'.2*',/0(' 1!=!3!/43'/,'.2*'
4!>2.' 8>*4*(&;;5',(/6'?'76'./'?'&69'
&41'./'.2*'4!>2.">0&(13'/,',/0(' 6*4' *&-2'
A2/'(*;!*=*1'/4*' &4/.2*(' *=*(5'A&.-2' 4'
-&67'.2*'<*>!44!4>'/,'.2*'4!>2."A&.-2'
A&3'3!>4&;;*1'<5'&'<;&3.'<;/A4'<*,/(*'
.2*'>*4*(&;3'.*4.'# ':'&;;'.2*'
<0>;*(3'&41',0(.2*('&.'.2*'*41'/,'*=*(5'
4!>2."A&.-2'.2*' 10(&.!/4'/,'A2!-2'A&3'
(*-D/4*1'<5'.2*'A&.*("-;/-D'&'<0>;*('>&=*'
.2*'3!>4&;',/(.2*'(*;!*,
'N'

!B.!3*0=!(!' 8.A*4.5"3!0' 6*49' 2*'
-/;;*-.!=*'4&6*'>!=*4'&.' /6*'./'.A*4.5"3!0'
/,,!-*(3'/,';/A*('(&4D'# 1 ' "$ '
2*5'A*(*'1!=!1*1'!4./'3!0'1!,,*(*4./,,!-*3'
&41' A*(*' /(!>!4&;;5'4/6!4&.*1' <5' .2*'
2!>2*(' /,,!-*(3'./' <*' .2*!(' &33!3.&4.3'<0.'
A*(*'30<3*:0*4.;5'-2/3*4'<5'.2*'7*/7;*'&.'
.2*' d '&41'!.' A&3' <5' .2!3'
&77/!4.6*4.'.2&.'.2*5',!(3.'<*-&6*' 6&>!3F
.(&.*3' 7(/7*(' 2*' .*(6'!4-;01*1' 8$9'
'" ' 8.*4"6*4' K01>*39' /('
' # ' " ' 8.*4"6*4'
,/(' .2*' 1*-!3!/4' /,' 1!370.*1' 30!.39' /(!>!F
4&;;5'4&6*1'<5'.2*'.(!<04*3'./'!4:0!(*'!4./'
.2/3*'-!=!;'30!.3'!4'A2!-2'.2*!(' &33!3.&4-*'
2&1'<**4'!4=/D*1'!4'-*(.&!4'&77*&;3',(/6'
.2*' 1*-!3!/4' /,' .2*' -/430;3' ,.*(A&(13'
.2*' 1*-!3!/4' /,' 30-2' -&3*3' A&3' ;*,.' ./'
.2*6'<5'.2*' -/430;3',(/6'.2*' =*(5' -/6F
6*4-*6*4.' 4'.!6*' .2*!(' (*;&.!/43' A!.2'
.2*' .(!<04*3' >(*A' ;*33' -;/3*' &41' .2*5'
<*-&6*' K01!-!&;' 6&>!3.(&.*3' A2/' A*(*'
7(/<&<;5'-2/3*4'!4'.2*' '
041*(.2*7(*3!1*4-5'/,' (' " '
,'.2*!(',04-.!/43'!4'1*.&!;'.;!..;*' 6/(*'!3'
D4/A4',(/6'.2*'.!6*'/,'.2*' *70<;!-'.2&4'
.2&.'.2*5'1*-!1*1'&-.!/43',/(',(**1/6'&41'
.2&.'.2*5'6&1*'.2*'&((&4>*6*4.3',/(' .2*'
.(!&;3'2*&(1'<*,/(*' .2*' -/0(.'/,'.2*' -*4"'
" ' 2!3';&..*(' 10.5'.2*5';/3.'!4'.2*'
;&3.'1&53'/,'.2*' *70<;!-'<0.'!.'A&3'(*3./(*1'
./'.2*6'<5' 0>03.03'8@9'T '
" ' " '8,/0(' 6*4',/(' 7(/4/04-!4>'
K01>6*4.9'A2/3*'10.5'!.'A&3'./'7(/4/04-*'
K01>6*4.'&.';&A'!4'.2*'.*4./A43'/,' &6F
7&4!&';!D*'.2*' ' " 'A2/'
A*(*'4/6!4&.*1'<5'.2*'7(&*./(!4'.2*'/.2*(*'
6 04!-!7&;!.!*3" .2*5'30(=!=*1'/4;5'.!;;'.2*'
.!6*'/,' 0>03.03' 8 9' + ' " "
8.2(**'6*4',/('4!>2."3*(=!-*9'/(!>!4&;;5'3*(F
=&4.3'/,'.2*'-/430;3'A2/'A*(*'(*37/43!<;*'
,/('.2*'7*&-*'&41'3&,*.5'/,' /6*'<='4!>2.'
37-!&;5'!4'(*37*-.' /,' 1&4>*('<5',!(*'
2*4'./'.2!3'10.5'A&3'&11*1'.2&.'/,'!4F
=*3.!>&.!4>'-(!6!4&;'-2&(>*3'.2*5'<*-&6*'
(*>0;&(' 6&>!3.(&.*3'041*('.2*'.!.;*'
' 4'.2!3'-&7&-!.5'.2*5'2&1'./'
.(&-D'/0.'*3-&7*1'-(!6!4&;3'./'*0&6!4*'
7(!3/4*(3'041*(' .2*'&0.2/(!Q&.!/4'/,'.2*'
2!>2*('6&>!3.(&.*3'./'!437*-.'.2*'70<;!-'
7(!3/43'&41'./'307*(!4.*41'.2*'-&((5!4>'
/0.'/,'-&7!.&;'3*4.*4-*3'&41'/,'-/(7/(&;'
704!326*4.3' *4-*' 7(!3/4"A&(1*(3'&41'
0-0.!/4*(3'A*(*' 7;&-*1'041*(' .2*6'
41*(.2*' 67!(*'!.'A&3'&;3/'.2*!('10.5'
./'<06'/,,*43!=*'</!D3' 8C9' +
" '8.2(**'6*4',/('.2*'6!4.9'A2/

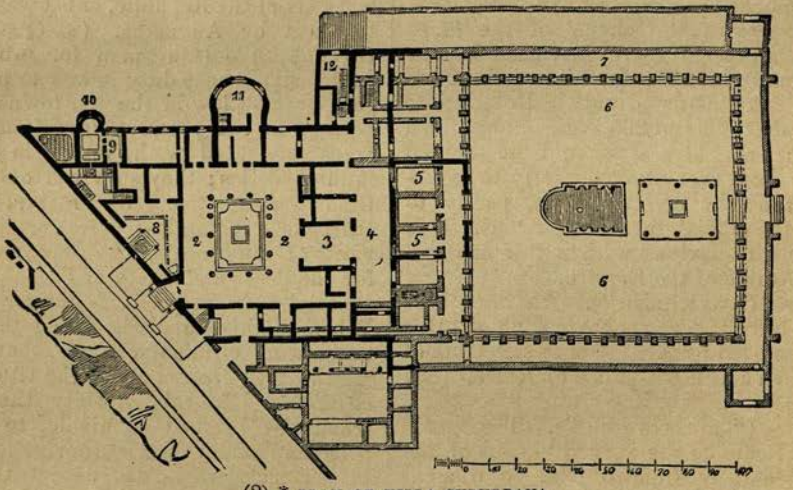
% f **' &033*./4' !/*(/',' '$ '?N g
'

had, under the Republic, the superintendence of the coinage of gold and silver, under the Empire that of the copper currency only. (5) *Quattuorviri viīs in urbe purgandīs* (four men for cleansing the streets in the city). And (6) *Duoviri viis extra urbem purgandis* (two for cleansing the streets outside the city), who were under the direction of the ædiles. Under Augustus the *duoviri* last named disappeared as well as the *quattuorviri iuri dicundo*, and the collective name for the under-magistrates became *vigintiviri* (twenty men). These were chosen from the knights, and the office of the vigintivirate served as the preliminary step to the quæstorship.

Vīlĭcus. The Latin term for the steward of an estate. (*See* VILLA and SLAVES.)



(1) * VILLA MARINA.
(Mural painting from Pompeii; Gell and Gandy's *Pompeiana*, pl. 60.)



(2) * PLAN OF VILLA SUBURBANA
of M. Arvius Dĭōmēdēs (Donaldson's *Pompeii*, ii 1).
1, door. 2, *pĕristўlĭum*. 3, *tablīnum*. 4, gallery. 5, *œcus*. 6, court. 7, *cryptŏportĭcus*. 8, triangular court with cold bath. 9, *tĕpĭdārĭum*. 10, *călĭdārĭum*. 11, bedroom. 12, staircase leading to lower story.

Villa. A Latin word signifying a property in the country, consisting of a block of buildings for habitation and for domestic purposes. With the decline of agriculture and with the growing preference

/4 ,&=/0(/ -/04.(5"2/03*3 .2*(* &(/3* .2* 1!3.!4-.!/4 <*.A**4 &41 2* ,/(6*(3*(=*1 ,/(&>(!" "-0;.0(&; 70(7/3*3" .2* ;&..*(3/ -&;;*1 <*-&03* <0!;.!4 .2* ./A4 3.5;* /,* &(-2!.*-F .0(* /4;5 ,/(7;*&30(* &45 =!;;&3 A*(* 1*3!>4*1 /4;5 ,/(/4* / .2* .A/ /;5*-.3 /.2*(3 A*(* <0!;. ,/(</.2 2* !4-;01*1 &7&(.6*4.3 ,/(.2*) <
%/(3.*A&(1 8& .(03.A/(.25 3;&=* /(,(**1" 6&4 A2/ 2&1 ./ 307*(!4.*41 6/4*5" 6&..*(39 .2* </!D"D**7*(# &41 .2* "3;&=*3 3.&;;3 &41 3./(*"(//63 4 .2* *(*-.!/4 /,.2* " < 2@ 6&1* ./ 04!.* .2* -2&(6 /, <B0.!,0;;&41F 3-&7* A!.2 .2* >(*&.*3 -/6,/(.&41 -/4" "=*4!*4-* &41./7(/-0(* &1=&4.&>*3 A2!-2&* 2/03* !4 .2* ./A4 2*6 6*1 !4 /4 &;; 3!1*3 <5 /.2*(2/03*3" */0!1 4/. &;A&53 &,,/(1 .-/4.&!4*1 3*7&(&.* (//63 &41-/;/44&1*3 ,/(306 6*(&41 A!4.*(.2* ,/(6*(,&-!4 .2* 4/(.2 .2* ;&..*(.2* 3/0.2 <&.23 (//63 3*. &7&(. ,/(725!3!-&; *0*(-!3*3 ;!<(&(5 &41 &(. -/;;*-.!/43 0.3!1* A*(* 7&(D3 7(*3*(=*3 ,!32"7/413 &=!&(!*3 *.-/A&(13 .2* *41/, .2* *70<;!-/ &41 6 3.!;; 6/(* 041*(.2* 67!(* ;000(5 !4 30-2 *3.&<;!326*4.3 (*&-2*1 !.3 2!>2*3. 7/!4. !f 4 ;!45 3 = ?A* 2&=* &4 *;&F </(&.* 1*3-(!7.!/4/,2!3 03-&4 &41 !4 !!$U &6!40.* &--/04./,2!3 &. &4(*4.06 /4 .2* -/&3./, &.!06 2* &--/67&45!4> -0.3 >!=* &=!*A/, & " 8,!> $9 &41 &>(/041"7;&4 /, & " 8,!> @9g
;4&;;& A!4* ,*3.!=&; D*7. <5 .2* /6&43 !4 2/4/0(/, 07!.*(.A!-* *=*(5 5*&(F 8$9 /4 7(!; @ (1 #= "& ! A2*4 .2* A!4* /, .2* 7(*=!/03 5*&(A&3 <(/&-2*1 &41 &;!<&.!/4 ,(/6 !.7/0(*1 /4 .2* 3/1" &41 8@9 /4 0>03. $T.2 #= " .2*-/04.(5 ,*3.!=&; /,A!4*9 A2*4 %3&-(!,!-* A&3 6&1* ,/(.2* (!7*4!4>(&7*3 !.2</.2 ,*3.!=&;3 A&3 &33/-!&.*1 .2* A/(F 32!7 , *403 A2/ &3 >/11*33 /, >&(1*43 2&1 =!4*5&(13 &;3/!61*(2*(7(/.*-.!/4 !4 &' 32*1 03*1 <5 <*3!*>!4> &(6!*3 ./7(/.*-. .2*63*;=*3 &>&!43. .2* 6!33!;*3 /, .2* *4*65 # $!(<;03 4 .&;!&4>/1 !1*4.!,!*1 A!.2 !77 ;5.03 A2/ A&3 (&!3*1 ./ ;!,* <5 3-!*7;03 &41 A/(32!77*1 ./>*.2*(A!.2 !&4& &3 7(*3!1!4> >*4!03 /, .2* A//1 &41 .2*-2&3* # $ &41 / * !(>; 03 1 !(.03 2* /6&4 7*(3/4!,!-&.!/4 /, <(&=*(5 !4 A&(# / !3 2* /6&4 ;*>&; .*(6 ,/(&-.3 K/, =!/;*4-* 4 *&(;!*(.!6*3 /,,*4-*3 /, .2!3 D!41 A*(* !4-;01*1 041*(.2* 2*&1 /, # &41 2!>2 .(*&3/4 # 0 * 37*-!&; /,,*4-* .*(6*1 !4-;01!4>1!3.0(<&4-*3 /, .2* 7*&-* =!/;*4. &..&-D307/4 .2* 6&>!3.(&.*3&41 .2* *4&.* &41 .2* !;;*>&; 03* /, A*&7/43 A&3 ,!(3. .&D*4 -/>4!3&4-* /, <5 .2* ;&A /, ;&0.!03 RT &41 &37*-!&; 3.&41!4>-/0(. *3.&<F ;!32*1 ./1*&; A!.2 !. # T 2* 7*4&;.5 A&3 7(/3-(!7.!/4 # " M 1" ,.*(A&(13 6/(* 3*(!/03 -&3*3 /, A2!-2 2&1 6*&4A2!;*<*-/6*30<K*-. ./ -!=!; 7(/-*33 -&6* ./ <* -/43!1*(*1 &3 -(!6!4&; K/,!,*4-*3 &41 A*(* 704!32*1 A!.2 -/4,!3-&.!/4/, .2* .2!(1 7&(./ /4*3 7(/F 7*(.5 &41 1!3:0&;!,!-&.!/4 ,/(70<;!-/,,!-*3 41*(.2* 67!(* .2* 7*4&;.!*3 A*(* !4F -(*&3*1 ./1*&.2 /(*0!;* !.(0=!03 7 ;/ # # 6!;!.&(5 *4>!4**(A2/ ,;/0(!32*1 !4 .2* .!6* /, 0;!03 &*3&(&41 0>03.03 4 213 /;1 &>* -.&=!& .2* 3!3.*(/, 0>03.03 7(/F -0(*1 2!6 & 7*43!/4

*! !3 A2/ !3 !1*4.!,!*1 A!.2 72(1!.* A&3 (*>&(1*1 &3 2!3 A!,* 6/4> 2!3 32(!4*3 !4 /6* .2* 6/3.*A/(.25 !3 .2&.-&;;*1 = " &;*=*;37&-* (&!3*1 &</=* .2* 30(,&-* /, .2* 16!.!06 &41 3*(=!4> &3 .2* 2*&(.2 /, .2* 37/. A2*(* .2* -!.!Q*43 &33*6<;!*3 A*(* 2*;1 !3 -2!*,,*3.!=&;.2* =& <" H A&3 D*7./4 0>03.@ (1A2*!!-*(.&!4,!32 A*(* .2(/A4 !4./ .2* ,!(* /4 .2* 2*&(.&41 (&-*3 A*(* 2*;1 !4 .2* !(-03 ;&6;4;03 &-(!,!-*3 A*(* /,,*(*1 ./ 2!6 &3>/1 /, 6*.&;"A/(DF !4> /4 &5@ (1 .2* 1&5 &77/!4.*1 ,/(& -;*&43!4> /, .2* .(067*.3 03*1 !4 A/(32!7 &. D 3 ;/(1 /, .!(* 2* A&3 &;3/ .23 >/1 /, -/4,;&>(&.!/43" 2*4-* 2!3 .*67;*3 A*(* <0!;./0.3!1* .2* -!.5 A2!;* 2!3 .*67;* !4 /6* A&3 3!.0&.*1 !4 .2* &6703 &(.!43 0.06& 8> 0 9 &41 * $A2/ -&03*3 ,!(*3./ -*&3* *(* A/(F 32!77*1 A!.2 2!6 &3>/11*33*3 A2/ 7(/.*-. ,(/6 ,!(*3 &41 &70<;!-3&-(!,!-* A&3 /,,*(*1 .7 .2*6 &41 2!6 &.2* ,*3.!=&;/, .2* = " #$ 3 ! 9

5/;.0643 ' ')

17!3-43 / 6&4 2!3./(!&4 & ^ ! .) %@5$:

/.& *;!>!/03 =/A3 A*(* *0.(&/(1!F 4&(!;5-/66/4 &6/4> .2* /6&43</.2 !4 70<;!-&41 7(!=&.*;!,* 0<;!-=/A3 . " 1 A*(* 3/6*.!6*3 *0.(&/(1!4&(5 3/6*.!6*3/(1!4&(5 3(*>&(13.2*,/(6*(&(*;!>!/03 =/A &A&3 0..*(*1 !4 .!6*3 /, 4**1 !4 .2* 4&6* /, .2* .&.*. /.2* *,B-.2&.!,.2* >/13&=*(.*1 .2* 1&4>*(&41 -&03*1 .2* 7(/37*(!.5 /, .2* .&.* ./ (*6&!4 04!67&!(*1 ,/(.2* 4*0. ,!=* /(.*4 5*&(3 &37*-!&;.2&4D",,*(!4> A/0;1 <* 7&!1 .2*6 -/43!3.!4> /, 7(*3*4.3 /, -&..;* ;&(>* 3&-(!,!-*3 <&4:0*.3 . " 1 &! .!.2* /, .2* </!.5 &.*67;* >&6*3 *.- 4 /;1*(.!6*3&! " # .(1 A&3 &;3/ 7(/6!3*1 2*3* =/A3 A*(* 1(&A4 07 !4 A(!.!4> 041*(.2* 1!(*-.!/4 /, .2* J6 $ (*-!.*1 <5 .2* # # $ &41 7(!=&.*;5 (*2*&(3*1 &,.*(2!6 <5 &-/430;/(7(3*./(2* .2*4 70. &A&5.2* 1/-06*4.!4 .2* 7(*3*4-* /, A!.F 4*33*3 ,/(70(7/3*3 /, (*,*(*4-* A2*4 .2* =/A A&3 *0*-0.*1 (1!4&(5 =/A3 ,/(.2* >//1 /, .2* .&.* A*(* /,,*(*1 /4 .2* &7!./;25 .2* 2!>2*(/,,!-!&;3 /4 *4.*(!4> /,,!-* 8.2* -/430;3 /4 &40&(5 $3.9 &41 /4 ;*&=!4> ,/(.2*!(7(/=!4-* 2!3 A&3 -&;;*1 .2* 4 # "@ ,.*(N (& 37*-!&; # A&3 /,,*(*1 07 ,/(.2* A*;!&(* /, .2* *67*(/(&41 2!3 ,&6!;5 /4 &40&(5 (1 /A4 ./ .2* U.2 -*4.0(5 </.2 !4 /6* &41 .2(/0>2/0. .2* 67!(*.2!3 1&5 A2!-2 A&3 !.3*;, -&;;*1 # $ A&3 D*7. &3 &2/;!1&5 <5 &;;</1!*3 </.2 -!=!;&41 (*;!>!/03 41*(.2* 67!(* =/A3 A*(* (*>0;&(;5 6&1* ,/(;/4>*(7*(!/13 /, .!6* 8,!=* .*4 ,!,.**4 .A*4.5 5*&(3 " " " " 0 " " " " *3!1*3.2*3* .2*(* A*(* *0.(&/(1!4&(5 ,/(.2* (*.0(4&413&,*.5 /, .2* *67*(/((.2* (" /, .2* *67(*33 .2* <!(.21&5 &41 &--*33!/4 1&5 /, .2* *67*(/(&41 .2* ;!D* (!=&.* =/A3 & A*(* 6&1* /4 .2* 6/3.=&(!*1 /--&3!/43 2*5 6!>2.<* 3/;*64;5 /, ,*(*1 !4 &.*67;* /(6&1* 3011*4;5 !4 .!6*3 /, 6/6*4.&(5 7*(!; 4 .2* ,/(6*(-&3* &3*&;*1 A(!.!4> -/4.&!4!4> .2* =/A &A&3 ,&3.*4*1 ./ .2* D4** /, .2* >/13 !6&>* &41 .2*4 .&D*4 <5 .2* 7(!*3./, .2* .*67;* !4./ 2!3 D**7!4> ./ <* /7*4*1 &.2* 7(/7*(.!6* 4 .2* ;&..*(-&3* !, .2* 7(&5*(A&3 ,0;F ,!;*1 .2* =/A 2&1 ./ <* 6/3.3-(070;/03;5 *0*-0.*1 2* /, ,*(!4> A&3 >*4*(&;;5 &-F -/67&4!*1 <5 &=/.!=* .&<;*. A2!:2 A&3 7;&-*1 /4 .2* A&;;3 /, .2* .*67;* &41 -/4.&!4*1 &4 !43-(!7.!/4 /(&(*;!*, /(&7!-.0(* (*;&.!4> ./ .2* =/A 203 32!7F A(*-D*1 6&(!4*(3 /, ,*(*1 7&!4.*1 (*7(*F 3*4.&.!/43 /, .2* A(*-D !4 .2* .*67;*3 7, *7.04* /(3!3 f /(&-* ! V $ "$?" *(3!03 ! TNg 0;-&403 1 0;-&.;03 &;;* 403 /6&4 2!3F ./(!&4 & $5?A 5? $ / ' 5 ! 9

5

&(&4-* ? (&(,&(* 8$9 6 2* 1!3.!4-.!=*;5 A&(;!D* 7*/7;* &6/4> .2* (**D3 A*(* .2* " A2/3* A2/;* ;!,* ,(/6 *&(;5 5/0.2 ./ &1=&4-*1 &>* A&3 37*4.! 4 .2* -/4.!40&; 7(&-.!-* /, 6&(.!&; *0*(-!3*3 =*4 .2* 6*&;3 32&(*1 !4 -/66/4 <5 &;; 7&(.&43 A2/ 2&1 &..&!4*1 .2* ,0;; (!>2.3 /, -!.!Q*43 A*(* &((&4>*1 A!.2 (*,*(*4-* ./ 6!;!.&(5 3*(=!-* & $* A!4> ./ -/43.&4. 7(&-.!-* !4 &!!;!.&(5 *0*(-!3*3 /, *=*(5 7/33!<;* D!41 .2* 7&(.&4 &(65 7/33*33*1 & 1*0.*(!.5 !4 .2* 2&41;!4> /, A*&7/43 &41 & .&-.!-&; *10-&.!/4 A2!-2 -/6<!4*1 A!.2 .2*!(;/,.5 3*4.!6*4. /, 6!;!.&(5 2/4/0(,/(& ;/4> 7*(!/1 *430(*1

.2*!(' 307(*6&-5' /=*(' .2*' /.2*(' (**D' (&-*3' 2*' 10.5' /,' 3*(=!-*' A2!-2' <*>&4' A!.2' .2*' .A*4.!*.2' 5*&(' &41' &16!..*1' /,' 4/' *0-*7.!/43' 1!1' 4/.' .*(6!4&.*' 04.!;' -&7&-!.5' ,/(' 3*(=!-*' -&6*' ./' &4' *41" <0.' A!.2' 2!3' 3!0.!*.2' 5*&(' .2*' 3/;1!*(' <*-&6*' %*0*67.' ,(/6' ,/(*!>4' 3*(=!-*' (!>!4&;;5' .2*' 2*4=5"&(6*1' !4,&4.(5' /(' 2/7;!.*' -/4F 3!3.*1' 3/;*;5' /,' 7&(.&43" <0.' *=*4' &.' .2*' .!6*' /,' .2*' *(3!&4' &(3'3!1*'<5'3!1*' A!.2' .2*' 7&(.&43' A2/3*' .(//73' !4' .2*!(' ;&(>*(' 1!=!3!/43' A*(*' .*(6*1' ' (!' .2*' 4;3/' 3*(=*1' &3' 3/;1!*(3' <0.' !4' 3*7&(&.*' 1!=!3!/43' 2*' 2*;/.3' A2/' &--/67&4!*1' .2*' &(65'3*(=*1' &3' 7*(3/4&;' &..*41&4.3' ./' ".2*' 2/7;!.*3' # ' / * A 9 '&41'&3';!>2."' Y(6*1'.(//73'!4'<&..;*' ' 7!-D*1' -/(73' /,' .2*' 2/7;!.*3' 37*-!&;;5'*67;/5*1'&3' &' (/5&;' </15">0&(1' A*(*' .2/3*' D4/A4' &3' (' %82/(3*6*4' -/67/3*1'/,' NN' 7&(.&43'041*(' .2!(.5' 5*&(3' /,' &>*' A2/' A*(*' 3*;*-.*1' <5' .2*' .2(*' (1 ! ' &41' -/66&41*1' <5' .2*6' ' 7*-=0!&(' -/(73' /,' ;!>2.*(' !4,&4.(5' A&3',/(6*1',(/6'.2*' -;(!.3*'8.2*'!42&<!.&4.3' /,' .2*' 1!3.(!-.' /,' -!(;.!39' A2/' A*(*' 37*F -!&;;5'*67;/5*1' /4' .2*' /0."7/3.' 3*(=!-*' /,' .2*' -&67" .2*5' A*(*' 03*1' &3' 3-/0.3' /4' .2*' 6&(-2' &41' !4' <&..;*' 2&1' .2*!(' 7/3!.!/4' &3F 3!>4*1' .2*6' /4' .2*' ;*,' A!4>' 2*' 7&(.&43' &;3'D*7.'07' &',;**.' !4' A2!-2' .2*' 2*;/.3' A*(*' *67;/5*1' &3' 6&(!4*3' &41' /&(36*4" !4-&3*3' /,' >(*&.' *6*(>*4-5' .2*5' A*(*' .(&43,/(6*1' !4./' 2*&=5"&(6*1' 3/;1!*(3' &41' 3*(=*1' !4' .2*' &(65'&,.*(' A2!-2' .2*5' (*-*!=*1' .2*!(',(**F 1/6' # /4D!3' (/6' .2*' *41' /,' ,'2*'V.2'-*4.0(5' (' .2*' &-*1&*6/4!&4'&(65' A&3'1!=!1*1'!4./'3!0'61(6'*&-2'-/66&41*1' <5' &'7/;*6&(-2' A!4>' ./' .2*!(' 3.*&1!;5' 1*-(*&3!4>' 406<*(3' .2*' 7&(.&43' /4;5' ,/(6*1' .2*' 40-;*03' /,' .2*' <&..&;!/43' A2!-2' A*(*' <(/0>2.'07' ./' .2*!(' ,0;' -/67;*6*4.' <5' .2*' &11!.!/4' /,' ' 2*' /,,!-*(3' 2/A*=*(' A*(*' *0-;03!=*;5' 7&(.&43'&41' .2*' 7;&-*' /,' 2/4/0(' A&3'&;A&53'(*3*(=*1',/(' .2&.' </15' 4' 6!;!.&(5'*07*1!.!/43' .2*' .(//73' G/,.*4' -/43!3.*1' /,' '" / < / ' &;;!*3' &41' 6*(-*4&(!*3' A2!;*' .2*' 7&(.&43' &-.*1' /4;5' &3' /,,!-*(3' # ' P [' &41' 6*6<*(3' /,' .2*' (/5&;'3.&,,' 4' .2*'-&=&;(5' A2!-2' /4;5'7;&5*1'&30</(1!4&.B&(.'&6/4>' !!2*' 7&(.&43' ' / ' 2*' *72/(3' 2&1' .2*'-/66&41' /,' .2*' =*.*(&43'!4' .!6*' /,' A&(' 4' .2*' *&(;!*(' .!6*3' .2*' D!4>3' 1!=!1*1' .2*' 307(*6*' &0.2/(!.5" <0.' &,.*(' V$@' ' (' %/4*' &;/4*' -/66&41*1' 04;*33' .2*' -!(-06F 3.&4-*3' /,' .2*' -&3*' (*:0!(*1' 6/(*' .2&4' /4*' >*4*(&;' 2*' ,;**.' A&3' -/66&41*1' <5' (6/4>' .2*' (" " ' .2*' -!.!Q*43' /,' .2* ,!(3.' .2(**' -;&33*3' A*(*' &;/4*' *;!>!<;*' &3' 2/7;!.*3' &41' .2*5' A*(*' -2/3*4' &--/(1!4>' ./' /;/4 3';&A',(/6' (" < != " " ' ('&41'Q 1 '*' .2*,/0(.2'-;&33' .2*' (' A*(*',(**1',(/6'3*(=!-*' &41' A*(*' /4;5' *0-*7.!/4&;;5'*67;/5*1' &.' 3*&' <0.' 3/6*.!6*3' &3' ;!>2."&(6*1' .(//73' /4' ;&41' 2*5' A*(*' =*(5'(&(*;5'2*&=!;5'&(6*1' &41' A*(*' &;A&53' (*604*(&.*1' &.' .2*' *07*43*' /,' .2*' .&.*' 2*' &>*' /,' 6!;!.&(5'3*(=!-*' *0.*41*1',(/6'.2*'*!>2.**4.2'./'.2*'3!0.!*.2' 5*&(" .2*(*' A*(*' .203' ,/(.5 .A/' -;&33*3' /,' &>*' &41' *=*(5' 6&4' A&3' 603.*(*1' !4' &' -*(.&!4';!3.' # 14 '041*(' .2*' 4&6*' /,' .2*' ("'& ": '041*(' A2/6' 2*' 2&1',!(3.' &..&!4*1' .2*' &>*' /,' 3*(=!-*' B' 2*' ,!(3.' .A/' /,' .2*3*' -;&33*3' A*(*' /4;5' *6F 7;/5*1'8&3' './'7&.(/;'.2*',(/4.!*(3' /(*!>4' 3*(=!-*' <*>&4' !4' .2*' .A*4.!*.2' 5*&(' (/6' .2*3*' -;&33*3' A2!-2' A*(*' /4' *&-2' /--&3!/4' -&;;*1' /0.' <5' &' 37*-!&;' =/.*' /,' .2*' 7*/7;*' /4;5' 3/' 6&45' &3' A*(*' &<3/;0.*;5' 4*-*33&(5' A*(*' .&D*4' /0.' /,' *&-2' /,' .2*' .*4' (: '/(' .(!<*3' 2*' 6*6<*(3' /,' .2*' /04-!;' &41' 7(/<&<;5' &;;' /.2*(' /,,!-!&;3' A*(*' *0*67.' ,(/6' 3*(=!-*' 2*' 6*4' A2/' A*(*' ;*=!*1' A*(*' *4(/;;*1' &--/(1!4>'./'.2*!(' (: '!4'.*4' <&..&;!/43' - '# ' # (/%$' A2!-2' &(*' 3/6*F .!6*3'-&;;*1' (: 'A2!;*' .2*!('30<1!=!3!/43' &(*' -&;;*1' M (' 4' .2*' /--&3!/4' /,' &;*=5' .2*' .(//73' A*(*' 3/6*.!6*3' *:0!77*1' <5' .2*' &!1' /,' .2*' &;!*43' (*3!1*4.'!4' ..!-&' # ' D4 !9'&41' &;3/'!4' .2*' 1&53' /,' .2*' *&(;!*(' ..!-' /4,*1*(&.!/4'<5'6*&43'/,' .2*' -/4.!4>*4.3' -/4.(!<0.*1' <5' .2*' &;;!*3' .' A&3' .2*' 2/7;!.*3' A2/' A*(*' <*4*,!.*1' <5' .2!3'*:0!76*4.' (/6'.2*'.!6*'/,' *(!-;*3' &41' 10(!4>' .2*' *;/7/44*3!&4' &(' .2*' -&=&;(5' (*-*!=*1' Ka&5' &41' 6&!4.*4&4-*' 6/4*5'030& 5'&6/04.!4>'!4'&;' ./' C' /<;/3' 8V!1' 9' &'1&5' 2*' .&.*' &;3/' &;;/A*1' 7&5' &41' 6&!4.*4&4-*' ,/(' .2*' 2/(3*6&43' 7*(F 3/4&;'&..*41&4.' 4' .2*' .2*4!&4' -&=&;(5' A2!-2' A&3' 6/(*!67/(.&4.'.2&4' .2*' &-*F 1&*6/4!&4' ' / ' ./' .2*' .;**.'

' f 2!3'!3'.2*'=!*A'/,' ($ "" 1 ' ' 6 ' 4>'.(&43'7'C@ '' <&.'!4' (!3./.;*3'$ "R " ' ' (" ' V ' &' 1!3.!4-.!/4' !3' 1(&A4' <*.A**4'.2*' ("'/,' .2*'5*&('!4' A2!-2'3*(=!-*' <*>&4' &41' .2*' 1 " 8 ' A2/' A&3' /4*' /,' .2*' ,/(.5".A/' ": ' "'(1 "'8.2*' &>*3'/,'6!;!F .&(5'3*(=!-*9' 2/' .2*3*' ": ' A*(*'!3' 04F -*(.&!4'" 7/33!<;5'8&3'30>*3.*1' <5' (' ^*45/49' .2*5' A*(*' ,/(.5".A/' 2*(/*3' /,' .2*' ;*>*41&(5' 2!3./(5' /,' .2*43' 4' &45'-&3*' .2*5' 603.'4/.' 2*'-/4,/041*1'*!.2*('A!.2'.2*' *7/456/03' 2*(/*3' A2/'>&=*'.2*!('4&6*3'./'.2*'.*4'.(!<*3'!43.!.0.*1' <5' ;;3.2 4 3'/('A!.2'.2*' ("' ": 'A2/' >&=*'2!3'4&6*'./'.2*'5*&('!4'A2!-2'2*'A&3'-2!*,' &(-2/4 g

.!4>*4.' /,' -&=&;(5' ./>*.2*(' A!.2' .2*' 2*3F
3&;!&4' -&=&;(5'&41';!>2.'.(//73'&41'2/(3*6*4'
&41'&(-2*(3' 2*'.A/'A!4>3' A*(*' (*-D/4*1'
,(?6' .2*' -*4.(*' /,' .2*' 72&;&40' .2*' (!>2.'
<*!4>'>*4*(&;;5' (*3*(=*1',/(' .2*'&..&-D'&41'
;*1' <5' .2*' D!4>' 2*' ;!>2.' .(//73' <*>&4'
.2*'&..&-D'A2!-2' A&3' ,/;;/A*1' 47' <5' .2*'
2*&=!;5' &(6*1' &-*1/4!&4' -&=&;(5' 307F
7/(.*1' <5' .2*' (: ' 2*' 2*&=5'
!4,&4.(5' -&6*' 07' !4' 1*.&-26*4.3' ./' D**7'
.2*' ;!4*' 04<(/D*4'&41',/(6*1'&4'/<;!:0*'
<&..;*"&((&5' 203' .2*' 6&!4' &..&-D' A&3'
6&1*' <5' .2*' 2*&=5'-&=&;(5'&41'4/' ;/4>*('
<5' .2*' 72&;&40'&3' A!.2' .2*' (**D3' ! 2*'
72&;&40',/(6*1'!43.*&1'&'3/;!1'-*4.(*'/,' .2*'
A2/;*'&((&5'A2!-2'!.'A&3'!67/33!<;*',/(' .2*'
*4*65'./' <(*&D' .2(/0>2'&41'A2!-2'!4' .2*'
*=*4.'/,'!.3'6&D!4>'.2*'&..&-D'A&3'7*(,*-.;5'
!((*3!3.!<;*' 41*(' .2*' 5 ('/(' 30-F
-*33/(3'/,' ;*0&41*('.2*'72&;&40'/,'2*&=5'
!4,&4.(5',/(6*1' .2*' -*4.(*' /,' .2*' <&..;*'
&((&5'<0.';*33' A!.2'&'=!*A'./' !.3' .&D!4>'
7&(.'!4' .2*'&..&-D'.2&4'./';*4>.2*4'/0.' .2*'
,/(6&.!/4'&41'>!=*' !.'&' 3/;!1'<&3!3' 2*'
<&..;*' A&3' 1*-!1*1' <5' .2*' A!4>3'A2!-2'
A*(*' -/67/3*1',' -&=&;(5'/4*'A!4>'<*!4>'
1*3.!4*1',/(' .2*' &..&-D' A2!;*' .2*' ./.2*('
(*6&!4*1'/4' .2*' 1*,*43!=*' 2*' ;!>2.'
!4,&4.(5'&41' .2*' *;*72&4.3'8: =9' 03*1' <5'
.2*' 5 ('!4' A&('A*(*' !4-!1*4.&;;5'
<(/0>2.'./'<*&(' &3'/--&3!/4' (*:0!(*1'6/(*'
37-!&;;5'./' -/=*(' .2*' 7(*7&(&./(5'6/=*F
6*4.3' /,' .2*' -&=&;(5' /4' .2*' &..&-D!4>'
A!4>

4'.2*'-/0(3*'/,' .2*' (1'-*4.0(5' .2*'
-&=&;(5'1*-;!4*1' !4' 406<*(3'&41' !67/(F
.&4-*' &41' .2*' 2*&=5"&(6*1' !4,&4.(5'
2!-2' A&3' 4/A'&(6*1'A!.2' .2*' ;/4>'
1' *=*4' !4' (**-*' !.3*;,'<*-&6*' !4F
-(*&3!4>;5' *,,*-.!=*' 2*' 72&;&40' A&3'
03*1'!41*7*41*4.;5',/(' 70(7/3*3'/,'&..&-D'
&41' .2!3' &..&-D' A&3' >*4*(&;;5' 1*-!3!=*'
0(!4>'.2!3'-*4.0(5';&(>*' 3.&41!4>'&(6!*3'
/,' 6*(-*4&(5'.(//73'<*-&6*' -/66/4' 4'
(**-*' 7(/7*('.2*'/4;5'&(65'/,'!67/(.&4-*'
&.'.2!3'.!6*'A&3'.2&.'/,'.2*' -2&*&4' *&>0*'
&,.*(' !.3' (*/(>&4!Q&.!/4' <5' 2;;17/*6*4'
(**D'A&(,&(*' 30--06<*1'!4' .2*' 3.(0>>;*'
A!.2' .2*' /6&43' 6&!4;5' <*-&03*' .2*'
;!6!.&.!/43'&..&-2!4>'./' .2*' .&-.!-3'/,'.2*'
72&;&40'A*(*'!;;"30!.*1'./'&'2&41'./'2&41'
*4>&>*6*4.' # ' 1 $*7'&41' ' &# B&'

!#' & '& * $ '&41') *" $.'
a '&;3/' 1 #'&41')(
&(' /13' >EH' 6 ' ' ' #' 1)'
'.C
>GH' 7 "' '. & #'1)' $*&';3(
&(' (!<04*3' ' '!*'. !
&.-26*4' ': 1 #'1)': 1 +

% &.*("-;/-D9' 'BB!K3(3! ^ '
&7/43' 2' A*&7/43'/,' &..&-D' &41'
1*,*4-*'*4!7;/5*1'<5'.2*'8 B#'/,'2!3./(!-'
.!6*3'&(*' *33*4.!&;;5'.2*' 3&6*' &3' .2/3*'
A!.2' A2!-2' .2*B' /4!*(!0' 2*(/*3' &77*&('
*:0!77*1'!4' &4' *&(;!*(' &>*9' 2*' -2&4>*3'
>(&10&;;5'!4.(/10-*1' *37*-!&;;5' &,.*(' .2*'
*(3!&4' &(3'.*41*1'./'6&D*'.2*'&(6/0('
;!>2.*('&41'./'>!=*'>(*&.*('7/A*('/,'6/=*F
6*4.' ./' .2*' -/6<&.&4.3' /(' 1*,*43!=*'
&(6/0(' .2*5' 03*1' &' (' # C [' &'
' # ' $ &,(7' &' 1 ' # ' D
;*&.2*('/(',*;.'-/=*(!4>'.2*' ;/A*('7&(./,'
.2*' </15'&41'(*&-2!4>'1/A4'./'.2*' 6!11;*'
/,' .2*' .2!>23' /6*.!6*3' .2!3' -/43!3.*1'
/,' 4&((/A'3.(!73' -&;;*1' !1' 8A!4>39'
&((&4>*1'*!.2*('!4'3!4>;*'/('1/&<;*'(/A3'&41'
-/=*(*1'A!.2'6*.&;' /6*.!6*3'!.'A&3'&'
-/67;*.*'-/&.'7;&.*1'A!.2'<&413'/,'6*.&;'
2*'1 '# " '-/=*(*1'.2*',(/4.'7&(./,'.2*' ;*>3',(/6'.2*' &4D;*3'./'K03.'&</=*'
.2*' D4**'&41'-/43!3.!4>'/,';*0!<;*' 6*.&;'
7;&.*3' /(' ;*&.2*(' ,&3.*4*1' <*2!41' A!.2'
<0-D;*3' 2*' A*&7/43' /,' 1*,*4-*' A*(*'
-/67;*.*1'<5'.2*' ('# %
/(',,*43!=*' A*&7/43'.2*5' 2&1'<*3!1*'
.2*' @ '# %'.2*' " '# / ',!=*'./'
3*=*4',**.';/4>' 2!3' A&3'/,'!(/4'3/6*F
.!6*3'<(/&1*(' 3/6*.!6*3'4&((/A*('&41'
3/6*.!6*3'2//D*1'&41'A!.2'&4'!(/4'K/!4.'
/4' .2*' <4..' *41' A2!-2' 3*(=*1'./',!O' .2*'
37*&(' 6/(*'*&3!;5'!4' .2*' >(/041'/(' -/0;1'
<*' 03*1'&3'&4' /,,*43!=*' A*&7/4' A2*4'.2*'
(*>0;&(' 2*&1'A&3'<(/D*4'/,,' 2*' -&=&;(5'
03*1'&'32/(.*(';&4-*' # " ',/(' 20(;!4>'&3'
A*;;' &3' .2(03.!4>" .2!3' A&3' 60-2' 32/(.*('
.2&4' .2*' &-*1/4!&4' '# ' 2*'
/.2*(' A*&7/43' /,' &..&-D' A*(*' 8 " '
" " ' /,' 1!,,*(*4.' 3!Q*3' .2*' ;/4>*('
D!413' /,' A2!-2' A*(*' 20(;*1'<5'6*&43'/,'&'
.2/4>' # ' 80 *&# #' ,!>' $9' </A3' &41'
&((/A3' # ' /A39' &41' "1' # ' 4'
.2*' *:0!76*4.' /,' .2*' 1!,,*(*4.' D!413' /,'
.(//73' ' 80 * +')) #' $) #'

&# -
6/4>'.2*' $ &*#' .2*' ,0;;' *:0!76*4K.'
/,'1*,*43!=*' &(6/0(' 3!6!;&(;5'-/43!3.*1' /,'
('# ' # ' $' &('1 '
'&41' ('# ' !.2' (*>&(1'./'
.2*' >(*&=*3'!.'603.'<*'4/.*1'.2&.'!4' ;&.*('
.!6*3'.2*' !4,&4.(5'A/(*'.2*6' /4;5'/4'.2*'
(!>2.',/.' A2!-2'A&3'047(/.*-.*1'<5'.2*'
32!*;1

*3!1*3'.2*' @ '# '.2*' 2/(3*'&41'
,/./,'.2*';*>!/4'&;!D*'03*1'&3'&4'/,,*43!=*'
A*&7/4'.2*' " '# ' &# &(' .' A&3'
/4;5'.2*' ;!>2."&(6*1'.(//73'.2&.'/0>2.'
A!.2'8 " '&41' "1' 2*4'.2*' '
&' A&3'!4.(/10-*1',!(3.',/(' &' 7&(.'&41!

,!4&;;5 ,/(.2 "A2/; /, .2 ;*>!/4 2!3 A&3 .2 6!33!; A2!-2 .2 ./6&43 26";*1 &. .2 -/66*4-*6*4. /, &4 *4>&>*6*4. <*,/(-/6!4> ./ -;/3 :0&(.*(3 A!.2 .2*!(3A (13 /(,0;;*(1*.&!;3 /4 .2 -2&4>*3 .2&. .//D 7;&- !4 .2 /6&4 &(63 3*- A*(4/. & 4&.!/4&; /6&4 A*&7/4 &41 A*(/4;5 03*1 <5 .2*!(&;;!*3 4 .2 *4>!4*3 /, A&(3* *&=!4> A&3 7(&-.!3*1 &6/4> (**D3 &41 /6&43 ,(/6 .2 *&(;!*3. .!6*3 2*5 (*>&(1*1 .2*4 &41 !4*(=& (*37*-.!=*;5 &3 .2 !4=*4.(*33 /, 37!44!4> &41 A*&=!4> /.>*.2*(A!.2 .2 1!3.&,, &41 37!41;* 2 A*&=!4> /, A//; A&3 6/(*37*-!&;;5 0(30*1 <*-&03 .2 /(!>!4&;8&41 1/A4 ./ !.*.!6*3 .2 /(1!4&(59 1(*33 /, (**D3 &41 /6&43 A&3 /, .2&. 6&.*(!&; (/6 .2 *&(;!*3. 1&. A/(D!4> !4 A//, ,/(6*1 7&(. /, .2 2/03*2/;1 10.!*3 /, A/6*4 A2/ *!.2*(A/=* A!.2.2*!(/A4 2&413 .2 >(*&.*(7&(. /, .2 -;/.2!4> 4*-*33&(5 ,/(/(1!4&(5 03* /(307*(!4.*41*1 !.3 6&40,&-.0(* <5 .2*!(3;&=*3 7&(. ,(/6 .2 /&(3 ,&<(!-03*1 <5 .2 ;/A*(-;&33*3 &41 3;&=*3 .2 /4;5 &(.!-;*3 6&1 <5 .(&1*37*/7; A*(-/3.;5 A/=*4 3.0,,3 30-2 &3 -/=*(;*.3 -&(7*.3 -0(.&!43 *.- .2 6&40,&-.0(/, A2!-2 1*6&41*1 >(*&.*(7(&-.!-* &41 6/(-/67;!-&.*1 7(/-*33*3

4 37!44!4> .2 A/6&4 2*;1 .2 1!3.&,, 8 (! * &. A(&77*1 &</0.

8 +3* 7+!4.!4> 9

A!.2 -&(1*1 A//;!4 2*(;*,.2&41 /(041*(.2 ;*,. &(6 /(,!0*1 !. !4 2*(>!(1;* !.2 .2 (!>2. 32 1(*A /0. &41 .A!3.*1 .2 ,!<(*3 &41 &..&-2*1 .2*6 ./ .2 37!41;* 8 (&. 2 ;&..*(A&3 -&03*1 ./ (*=/;=* (&7!1;5 &41 !.3 (/.&.!/4 A&3 6&1 6/((&7!1 &41 3.*&15 <5 6*&43 /, &36&;; A2**; -&;;*1 .2 A2/(; 8)/(,; ,!..*1 ./ !.3 ;/A*(*0.(*6!.5 2*4 .2 3,.!41;* A&3 ,0;; A2&. A&3 A/041 A&3 .&D*4 /, &41 7;&-*1 !4 .2 37!44!4> <&3D*. & (/(A*&=!4> .2 /;1*3. ;//63 A*(07(!>2. A!.2 & =*(.!-&;;5 !43*(.*1 A&(7 .2(/0>2 A2!-2 .2 A*&=*(2&1 ./ 1(&A .2 A//, <5 7&33!4> <&-DA&(13 &41 ,/(A&(13 &-(/33 .2 ;//6 ,.*(.2 !4.(/10-.!/4 /, .2 !67(/=*1 2/(!Q/4.&;//6 8 3077/3*1 ./ <* &4 !4=*4.!/4/, .2 >57.!&43 &. A2!-2 .2 A*&=*(A/(D*1 3!..!4> .2 /;1",&32!/4*1 ;//63 A*((*.&!4*1 !4 .&;5 /4;5 ,/(A*&=!4> ,;&0 &41 ,/(6&D!4> A2&. A&3 -&;;*1 .2 " --/(1!4> ./ & ;/4>"*3.&<;!32*1 -03./6 .2 </5 70. .2!3/4 A2*4 (*-*!=!4> .2 .15&/, 6&42/1 &41 .2 <(!1 &;3/ &330 6*1 !. /4 .2 =*4!4> <*,/(2*(A*11!4> 3 & (0; /4;5 7;&!4 3.0,,3 A*(A/=*4 !4 ;*4>.23 &41 /4;5 .2/3 /, /4 -/;/0(A*(!4 >*4*(&;03 * <0. 7&..*(43 A*(&;3/ A/(6 2 &4-!*4.3 A*(&;3/ !4=*4./(3 /, .2 7*-0;!&(&(./, A*&=!4> !4 -/;/0(3 .2 (/, A2!-2 .2 (**D3 2&1=*(5 *&(;5 </(((/A*1 ,(/6 .2 (!*4.&;3 3!4-* .2 /6*(!- A/6*4 &(A*;; &8a :0&!4.*1 A!.2 !. f L 0!= $UR OO!! CCNg 2*5 A*(4/ ;*33 3D!;;*1 !4 A*&=!4> !4 >/;1 A2!-2 &;3/ -&6 ,(/6 .2 &3. 2 7(!4-!7&; 7;&- ,/(3!;D"A*&=!4> A&3 .!;; .2 .!6 /, ;!45 8 O! UUg .2 (**D !3;&41 /, /3 A2*(.2 ,!4 .(&437&(*4. /&4 ,&<(!-3 A*(6&1 ,(/6 .2 -/-//43 !67(/.*1 .2!.2*(!;D"3.4,,3 !67(/.*1 <5 =&(!/03 6*&43 ,(/6 2!4& A*(&;3/ .&D*4 ./ 7!*-*3 -/;/0(*1 &41 .2*4 A/(D*1 07 A!.2 ;!4*4 5&6 -/../4"A//; /(32**7 3 A//; ./ 2&;,"3!;D 3.0,,3 -&;;*1 .0,,3 *4.!(*;5 /, 3!;D ,!(3.-&6 * !4./ 03* !4 .2 (1 -*4.0(5 !;;3 8$9 6/4>3. .2 & .*3.&./(A&3 4/. &;;/A*1 !4 1*,&0;./, ;*>!F .!6&.* 2*!(3 ./ <*:0*&.2 2!3 7(/7*(.5 ./ /4 4/./, 2!3 /A4 ,&6!;5 # @ $ 9 A&3 /;/4 A2/ ,!(3.;*>!3;&.*1 ,/(.2 (*F 6/=&;/, .2!3 (*3.(!-.!/4 A2!-2 -03./6 2/AF *=*(-/.!40*1 ./6&!4.&!4 /;/4 2/A*=*(>(&4.*1 ,(** .*3.&6*4.&(5 7/A*(3 /4;5 !4 .2/3 -&3*3 A2*(.2*(A*(4/ ;*>!.!6&.* 3/43 , .2*(A*(&45 30-2 3/43 & A!;; -/0;1 /4;5 < 6&1 !4 ,&=/0(/, /.2*(7*(3/43 !4 .2 *=*4./, .2 3/43 15!4> <*,/(.2*!(6&K/(!.5 , & ,&.2*(2&1 1&0>2.*(3 /4;5 2 -/0;1 6&D & A!;;!4 ,&=/0(/, /.2*(*(3/43 /4;5 /4 -/41!./4.2&. .2*5 6&((!*1 !3 1&0>2.*(3 2!;1(*4 </(& /0. /, A*1F ;/-D A2/ 2&1 4/. < 4 ;*>!.!6!Q*1 A /4;5 &;;/A*1 ./ 2&= & ;*>&-5 <*:0*&.2*1 .2 6 A2!-2 A&3 4/. ./ *0-**1 $ NNN1(&-26& 8E R !4 &6/04. *3!1*3 7*(3/43 041*(&> /(/, 043/041 6!41 .2/3 A2/ 2*;1

/,,!-!&;' 7/3.' &41' 2&1' 4/.' 5*.' (*41*(*1' &4' &--/04.' /,' .2/!(' &16!4!3.(&./!/4' A*(*' -/4F 3!1*(*1' !4-&7&<;*' /,' 6&D!4>' &' A!:;' ' ;\2 *' A!:;' A2*4' 1(&A4' 7' A&3' 3*&;*1' !4' .2*' 7(*3*4-*' /,' A!.4*33*3' &41' 1*7/3!.*1' A!.2' '(*37/43!<;*' 7*(3/4' !4' /(1*(' .2&.' !.' 6!>2.' <*' /7*4*1' &;3/' !4' 7(*3*4-*' /,' A!.4*33*3' !6 6*1!&.*;5' /4' .2*' 1*&.2' /,' .2*' .*3.&./('!4' -&3*' 2*' 6!>2.' 2&=*' >!=*'4' &45' 37*-!&;' 1!(*-F .!/43',/(' 2!3',04*(&;

8@9' .2/4>3..2*' - & ' .2*' 6/3.' &4-!*4.' ,/(6' /,' A!:;' !3' .2*' # #' " # /' " $ -&;;*1' .203' <*-&03*' !.' A&3' 1(&A4' 07' !4' .2*' 7&.(!-!&4' # '"" '.(1' &.' A2!-2' .2*' 7/4.!,*0' A&3' 7(*3*4.' *3!1*3' .2!3',/(6' /,' A2!-2' /4;5' 7&.(!-!&43' -/0;1' &=&!;' .2*63*;=*3' /4*' A2!-2' 7;*<*!&43' -/0;1' 03*' A&3' !4.(/10-*1' !4' .2*' .!6*' /,' .2*' D!4>3' .2*' # #' " " ' 2!3' -/4F 3!3.*1' !4' &' =*(<&;' 1*-;&(&./4' 6&1*' <5' &' 3/;1!*('A2/' A&3' &'-!.!Q*4' !4' .2*' 7(*3*4-*' /,' .2(*' /(' ,/0(' /,' 2!3' -/6(&1*3' A2!;*' .2*' >*4*(&;' A&3' .&D!4>' .2*' &037!-*3' <*,/(*' K/!4!4>' <&..;*' /.2' .2*3*' ,/(63' A*(*' 307*(3*1*1' <5' .2*' # #' # ' ' ! #' /(' ' # " ' # " #$ -&;;*1' # " '9(< 1' /4' &--/04.' /,' .2*' 7(/-**1!4>3' /.**(=*1/4' .2*' /--&3!/4' 5' 6*&43' /,' &',*!>4*1' 3&;*' .2*' .*3.&./(' 2&41*1' /=*(' 2!3',/(.04*' . # 1' ./' &' ,*!>4*1' 70(-2&3*('X # ' # W 1' !4' .2*' 7(*3*4-*' /,' 3!0>' A!.4*33*3' /4' -/41!./4' .2&.' 2*' 1!=!1*1' !.' &6/4>' .2/3*' 4/6!4&.*1' &3' .2*' .*3.&./(3' 2*!(3' /4' 2!3' 1*&.2' 2!3' 7(/-*33' A&3' 3!67;!,!*1' !4' ;&.*(' .!6*3' &;'' .2/0B' ,/(' .2*' 3&D*' /,' ,/(6' .2*' # ' # ' A&3' (*.&!4*1'' <0.' &' 3!4>;*' 7*(3/4' A&3' &77/!4.*1' 2*!(' &41' -2&(>*1' A!.2' .2*' 10.5' /,' 7&5!4>' .2*' !41!=!10&;' ;*>&-!*3' ,' .2*' .*3.&6*4.&(5' 1!37/3!.!/4' A&3' 1*;!=*(*1' !4' A(!.!4>' &3' A&3' (*>0;&(;5' .2*' -&3*' .2*' A!.4*33*3' 3*&;*1' .2*' A!:;' &41' *&-2' /4*' 3!>4*1' 2!3' 4&6*' 4*&(' .2*' 3*&;' 2*' 1**1' A&3' 1*7/3!.*1' A!.2' &',(!*41'/('!4' &'.*67;*'/('A!.2' .2*' *3.&;' !(>!43' &41' &,.*(' !.' 2&1' <**4' /7*4*1' !4' 10*' -/0(3*' &' -/75' A&3' 6&1*' &41' .2*' /(!>!4&;' 7;&-*1' !4' .2*' 70<;!-' &(-2!=*3

2*',/(6' /,' .2*' A!:;' A&3' 3.!;' 3!67;*(' .' A&3' 3*&;*1' <*,/(*' .2*' 7(3*./(' !4' .2*' 7(*3*4-*' /,' 3*=*4' A!.4*33*3' 4' .2*' .!6*' /,' .2*' *67*(/(3' 3/;1!*(3' *4K/5*1' .2*' 7(!=!;*>*' /,' 6&,&4>' A!:;3' !4' &45',/(6' .2*5' 7;*&3*1' A2!-2' A*(*' 7*(,*-.;5' =&;!1' !,' .2*' 3/;1!*(' 1!*1*1' !4' .2*' 3*(=!-*' /(' A!.2!4' .2*' ,!(3.' 5*&(' /,' ;*&=!4>' !.' 2*' # #' ' ' ' ! #' A&3' &</;!32*1' !4' C T' ' <5' 2*/1/3!03' ' &41' .2*' ,/(6' /,' .2*' 7(6./(!&4' A!:;' A&3' -2&4>*1' ./' .2*' 3!67;*' /4*' /,' .2*' 03.!4!&4' ;&A' <5' A2!-2' &' 6&4' /4;1' ;*>&;;5' (*>!3.*(' 2!3' A!:;' 2*' (!>2.' /,' 6&D!4>' &' A!:;' W ' " ' " ' A&3' /4;5' 7/33*33*1' <5' !41*7*41*4.' /6&4' -!.!Q*43' &41' *3.&;' !(>!43' &41' /4;5' .2/3*' A/6*4' <*3!1*3' A2/' <5' .2*' 1*&.2' /,' .2*' 7*(3/4' !4' &0.2/(!.5' /=*(' .2*6' 2&1' -/6*' !4./' .2*' 7/33*33!/4' /,' ;*>&;'(!>2.3W ' ' .2/0>2' /4;5' A!.2' .2*' &77(/=&;' /,' .2*!(' >0&(1!&43' W ' ' /43' A2/' A/(*' 041*(' 7&(*4.&;' -/4.(/;' A*(*' >(&4.*1' .2*' 7(!=!;*>*' 041*(' 0>03.03' &3' &' (*A&(1',/(' .2*!(' 3*(=!-*3' !4' .2*' ,!*;1' W ' 2 " ! ' 41*(' /43.&4.!4*' !.' A&3' >(&4.*1' &3' &' (*A&(1'./'7*(3/43'2/;1!4>' &'-!=!;' /,,!-* ;&=*3' &41' B/3*' A2/' A*(*' 4/.' /&K643' W 1 " ' 2&1' 4/.' .2*' (!>2.' ,' 6&D!4>' &' A!:;' 5*.' .2*',/(6*(' 6!>2.' <*' .*3.&6*4.&(5' 2*!(3' !,' .2*5' (*-*!=*1' .2*!(',(**1/6' &.' .2*' 3&6*' .!6*' &41' .2*' ;&..*(' 6!>2.' (*-*!=*' &' <*:0*3.' !4' .(03.' 4' /(1*(' ./' 7(*=*4.' .2*' &-06 4;&.!/4' /,' 7(/7*(.5' !4' .2*' 2&413' /,' A/6*4' .2*' ; -' = " '8$?T' -9' ,/(<&1*' A/6*4'<*!4>'&77/!4.*1' 2*!(3'f!4'-&3*3' A2*(*' .2*' .*3.&./(3' 7(/7*(.5'*0-**1'1' E$ NNNg' <0.' 7*(6!..*1' .2*6' ./' (*-*!=*' &' ;*>&-5' .2&.' 1!1' 4/.'*0-**1'2&;' .2*' &6/04./,' .2*!42*(!.&4-*' !' .2*' !4.*(*3.' /,' <;//1' (*;&.!/43' .2*' ; -' A '8CN' ,9*3.&<;!32*1' .2&.' /4;5' .2(**' :0&(.*(3'/,' .2*2*(!.&>*'32/0;1'<*'1!3.(!<0.*1' !4' ;*>&-!*3' &41' .2&.' &.' ;*&3.' /4*':0&(.*(' 32/0;1',&;' ./' .2*' 32&(*' /,' .2*' 4&.0(&;' 2*!(' 0>03.03'/(1&!4*1' .2&.' 046&((!*1'X"" ! 1' &41' -2!;1;*33' . ! 1' 7*(3/43' 32/0;1' /4;5' !42*(!.' ,(/6' (*;&./!43' A!.2!4' 3!0' 1*>(**3' 2*',/(6*('!4'7&(.!-0;&('A*(*'./'<*'1*7(!=*1' /,' .2*' A2/;*' /,' .2*!(' <*:0*3.3' 04;*33' .2*5' 6&((!*1' A!.2!4' &' 2041(*1' 1&53' .2*' ;&..*(' A*(*' /4;5' ./' (*-*!=*' 2&;,' 2*' &;3/' ;&!1' &' .&0' /,' ,!=*' 7*(' -*4.' /4' .*3.&6*4.&(5' 7(/7*(.5' ./' ./' <*' 6*4.!/4*1' !4' .2*' A!:;' A&3' .&4F .&6/04.' ./' <*!4>' *0-;01*1' ,(/6' .2*' !4F 2*(!.&4-*' ' !.' &3' 2/A*=*(' .2*' -03./6' ./' 6*4.!/4' 1!3!42*(!.*1' -2!;1(*4*37*-!&;;5' <5' 4&6*' &41' ./' &11' .2*' (*&3/4',/(' A*!(' <*!4>' 1!3!42*(!.*1' ;;' .2/3*' A*(*' -/43!1*(*1' .2*' 7(!4-!7&;' 2*!(3'8 (&,,!9' A2/' (*-*!=*1' 32&(*3'.2&.'-/0;1' <*' *07(*33*1' !4' .*(63' /,' &'(*-/>4!3*1',(&-.!/4' /,' .2*' A2!-2' A&3' 1!=!1*1' !4./' .A*;=*' " ' 2*3/;*' 2*!(' A&3' -&;;*1' (' -' *' .2*' -/"2*!(3' /4' .2*' /.2*(' 2&41' A*(*' 1*3!>4&.*1' &--/(1!4>' ./' .2*' 32&(*' /,' .2*!(' !42*(!.&4-*' ,/(' !4F 3.&4-*' (' -' " ' 2*!(' ./' &.2!(1' 7&(.' W ' A (

!413' A*(*' (*>&(1*1' <5' (**D3' &41' /6&43' &;!D*' &3' 1!=!4*'<*!4>3' 4' /6*(' A2/' /4;5' 6*4.!/43' .2*' ,/0(' -2!*,' A!413' 8 /(.29' N (! 8 *3.9' 9

8 &3.9 &41 > 8 /0.29 .2*5 &(* &--/(1F !4> ./ /4* &--/04. W O 2 [-/6 6!..*1 <5 L*03 ./ .2* -2&(>* /,) ?;03 # @9 0. *;3*A2*(* .2*5 &77*&(&3 !41*7*4F 1*4.7*(3/4&;!.!*3 A2/ 1A*;!4> !4 2(&-* W !O V / , /(*&3 &41 L*725(03g 1!37;&5 .2*!(&-.!=!.5 &. .2* -/6 6&41 / , L*03 &41 /.2*(>/13 &41 &(* !4=/D*1 <5 6*4 A!.2 ;&5*(3 &41 3&-(!,!-*3 W';' OO!!! $TVg *3!/1 W+(1 URg -&;;3 .2*3* A!413 -2!;F 1(*4 /, 3.(&*03 &41 /3 &41 1!3.!4>0!32*3 .2*6 &3 <*4*,!-*4. <*!4>3 ,(/6 .2* 1*F 3.(0-.!=* A!413 .2* -2!;1(*4 /,';B72/* 3 %+(1 R?Tg /6*7&(.!-0;&(65.23 37*&D /4;5 /, /(*&3 &41 L*725(03 8> 4 9 ,(/6 A2/6 /4 &--/04./ /,.2*!('3A!,.4*33 ,&6/03 2/(3*3 A*(* 3077/3*1 ./ <* 1*3-*41*1 203 f!4 ' ' O=! $VNg .2* 2/(3*3 /, -2!;;*3 &(* -&;;*1 .2* -2!;1(*4 /, L*725(03 &41 11&(> /4*/, .2* &(7!*3# / * 9 2* ;&..*(!4 &--/(1&4-* A!.2 .2*!(/ (!B &;' 4&.0(* &(* &;3/ 1*!.!*3 /, .2* A!41 /((&.2*(/, .2* 3./(6 4 2!3./(!-&;' .!6*3 .2* -0;.' /, .2* A!413 !4 >*4*(&;' /(.2&.' /, /(*&3 /(L*725(03 !4 7&(.!-0;&(,;/0(!32*1 &.' 37*-!&;' 7;&-*3 !4 (**-* 4 .&;5 &;3/ .2*5 A*(* 2*;1 !4 60-2 =*46(&" .!/4 7&(.!-0;&(;5 .2* ,(0-.!,5!4> A!41 !=/4!..3 A2!-2 -/((*37/41*1 ./ L*725(03 4 /6* .2* .*67*3.3 # 2&1 & 3&4-.0&(5 /, .2*!(/A4 A!.2 (*>0;&(3&-(7 ,;**3 &. .2* , $ " 5 A2!-2 A&3 ,/041*1 !4 @VT (!4 -/43*:0*4-* /, & = A 6&1* ,/(.2* 7(*3*(=&.!/4 /, & /6&4 ,;**. !4 & 3./(6 &. 3*& /6&4 >*4*(&;3 A2*4 *6<&(D!4> 030&;5 /,,*(*1 7(&5*(3 ./ .2* A!413 &41 3./(63 &3 A*;;* &3 ./ .2* /.2*(>/13 &41 -&3. /,,*(!4>3 &41 <;//15 3&-(!,!-*3 !4./ .2* A&=*3 ./ 7(7/7!.!&.* .2*6 / .2* <*4*,!-*4. A!413 A2!.* &4!6&;3 A*(* /,,*(*1 &41 .2/3* /, & 1&(D -/;/0(./ .2* 6&;!>4&4. *:0!4/-.!&; &41 A!4.*(3./(6 2* =!-.!63 A*(* >*4*(&;;5 (&63 &41;&6<3 4 A/(D3 /, &(. .2* A!413 &(* 030&;;5 (*7(*3*4.*1 A!.2 A!4>*1 2*&1 &41 32/0;1*(3 /7*4 6/0.2 &41 !4,;&.*1 -2** D3 2* 6/3. 4/.*A/(.25 6/406*4. ,(/6 &4 &(.!3.!-7/!4. /, =!*A !3 .2* + @ (M " ' 3.!;;3.&41!4>!4*0-*;;*4.7(*3*(=&.!/4 &. .2*43 /4 A2!-2 *!>2. A!413 &(* (*F 7(*3*4.*1 # 9 > ; N (_M 1 " < H !4* (/6 .2* =*(5 *&(;!*3. .!6*3 A!4* A&3 .2* 1&!;5 <*=*(&>* /, .2* (**D3 &41 A&3 6&1* !4 *=*(5 (**D -/04.(5 2* <*3. A&3 7(/10-*1 /4 .2* -/&3.3 &41 !3;&413 /, .2* B >*&4 30-2 &3 2&3 3 2/1*3 57(03 &41 &</=* &;; 2 ?3 &41 *3<3

2* -0;.!=&.!/4 /, .2* =!4* A&3 -/6 6/4" !4 /A*(.&;5 <*,/(* !.3 -/;/4!Q&.!/4 <5 .2* (**D3 &41 .2* /6&43 2&1 =!4*5&(13 !4 =*(5 *&(;5 .!6*3 d !4* A&3 2/A*=*(;/4> (*>&(1*1 &3 &4 &(.!-;* /, ;000(5 &41 A&3 ;!6!.*1 !4 !.3 03* 2* (*>0;&(7(/F 10-.!/4 /, A!4* 8.2* 6*.2/1 /, A2!-2 A&3 !67/(.*1 ,(/6 (**-* ./>*.2*(A!.2 .2* ,!4*(=&(!*.!*3 /, =!4*39 ,!(3. -&6* !4 A!.2 .2* 1*-;!4* /, .2* -0;.!=&.!/4 /, -*(*&;3 2* 2/6*">(/A4 A!4*3 A*(* /, ;!..;* *3F .**6 &3 -/67&(*1 A!.2 .2* (**D 4&1 *37*-!&;;5 .2* 2!>2;5 7(!Q*1 !3;&41 A!4*3 04.!;.2* $3.-*4.0(5 - ,.*(.2!3 1&.* .2* -&(*,0;.(*&.6*4. /, & 406<*(/, .&;!&4 &41 6/(* 7&(.!-0;&(;5 /, &67&4!&4 <(&413 830-2 &3 .2* &;*(4!&4 6-!!<&4 &41 &33!-9 7(/-0(*1 ,/(.2*6 .2* (*70F .&.!/4 /, <*!4>.2* ,!(3. A!4*3 /, .2* A/(;1 2*5 ,/(6*1 &4 !67/(.&4. &(.!-;* /, *OF 7/(.4/. 6*(*;5 ./ .2* -/;;*-.!=* 7(/=!4-*3" / , .2* /6&4 *67!(* (**-* 2*(3*;, 4/. *0-*7.*1 <0. &;3/ <*5/41 .2* /6&4 ,(/4.!*(.A&3 ./ .2* &1=&4.&>* /, .&;5 .2&. !4 .2* A*3.*(4 7(/=!4-*3 1/A4 ./ .2* (1 -*4.0(5 (.2* -0;.!=&.!/4 /, .2* =!4* A&3 30<K*-. ./ -*(.&!4 ;!6!.&.!/43 /4*A 5 =!4*5 1 -/0;1 <* &11*1 ./ .2/3* &;(*&15 *K.!3.!4> &41 .2* .&;!&4 =!4*3 -/0;1 4/. <* !4.(/10-*1 &;.2/0>2 &0;7(/10-*1 6&45" =&(!*.!*3 /, A!4* 41*(.2* 67!(* A!2* A&3 .2* 6&!4 &(.!-;* /, /(*1 !4 .&;5 (**-* &41 3!& &41 .2* A!4* 6*(-2&4.3 /, /6* A2/ 2&1 ,(/6 .2* -/66*4-*6*4. /, .2* @41 -*4.0(5 ,(/6*1 .A/ -/(7/(&.!/43 /4* ,/(.2* *&3.*(4 &41 &4/.2*(,/(.2* A*3.*(4 .(&1* 2*;1 &4 !67/(.&4. 7/3!.!/4 4 .2* $3. -*4.0(5 .2*(* A*(* &;(*&15 *!>2.5 ,&6/03 <(&413 !4 .2* 6&4 .(&1 *!&.*;5 7/0(*1 !4./ ;&(>* 7!.-2*1 *&(.2*4A&(* K&(3 #6- (&. * /X1 2*3* A*(* 7;&-*1 041*(>(/041 !4 &A!4*"-*;;&(,&-!4> .2* 4/(.2 ./ D** 7 .2*6 -/!;' &41 D*7. 04-/=*(*1 ,/(& 5*&(!4 /(1*(. /* ,*(6*4. .2/(/0>2;5 2* !4,*(!/(A!4*3 A2!-2 A*(* /,4/>(*&.&>* A*(* 1(04D 6 6*1!&.*;5 ,(/6 .2* K&(W 2

' !' !-*(/ ' ' @@Rg' 2*' <*..*(' /41*(3' /,' .2*' /(;1' *=*4' &4-!*4.'
D!413' A2!-2' A*(*' 6*&4.' ,/(' 7(*3*(=&.!/4' <0!;1!4>3' /(' A/(D3' /,' &(.' 1!3.!4>0!32*1"
A*(*' 7/0(*1' !4./' (' 2*3*' A*(*' *!.2*(' ,/(' 3!Q*' /(' 37;*41/0(M ' 8$9' .2*'
-;/3*1'A!.2'3./4*'3./77*(3'3*&;*1'A!.2'7!.-2' >57.!&4' 75(&61!3"' 8@9' .2*' 2&4>!4>' >&(F
-;&5'/(' >5730 6' 6&(D*1'A!.2'&'<(&41',0(F 1*43' /,' ,!6;(&6!3' &.' &<5;/4" 8 9' .2*'
4!32*1'A!.2' &' ;&<*;' >!=!4>' .2*!(' 5*&(' &41' .*67;*' /,' (. 6!3' &.' 72*303" 8C9' .2*'
6*&30(*' # '/(' " '&41' 7;&-*1'!4'.2*' .&.0*'/,'L*03'& '<5' 2!1!&3'&.' ;567!&'
(' 2!3' A&3' &' (//6' !4' .2*' 077*(' 8V9' .2*' &03/;*06'& '&.' &;!-&(4&3303'
3./(5'<0!;.'<5'7(*,*(*4-*'/=*(.2*'<&.2"(//6' 8?9' .2*' <;/3303',' 2/1*3'# ' '@9"
!4'/(1*(./'-&.6'.2*'36/D*',(/6'.2*',0(4&-*' &41' 8U9' .2*' ;!>2./03*' /4' .2*' !3;&41' /,'
&41' .203'./' 6&D*' .2*' A!4*' 6/(*' 6*;;/A 2 (<3'/,,' ;*0&41(!&!4' >57.
4*' 6*.2/1'/,'!67(/=!4>'.2*'A!4*'A2!-2' (!.!4>' &.*(!&;3' (/6' &4'*&(;5'1&.*'
A&3'03*1'!4'.2*' &3.'&41'!4' (**-*' A&3'./' .2*' (**D3'*67;/5*1'!4'.2*' 7(/10-.!/4' '
D**7' .2*' A!4*' !4' >/&."3D!43' <*-&03*' .2*' </!D3'& 7&7*(' 7(*7&(*1',(/6' .2*' >57.!&4'
;*&.2*(' .*41*1'./' -&03*' *=&7/(&.!/4' /,' .2*' : ' 7;&4.' 2!3' A&3' 7(/<&<;5' 6&40F
A&.*(' 4' .&;5'.2*'A!4*"3D!43' &77*&(' ./' ,&-.0(*1' &3' ,/;;/A3M &3' 6&45' 3.(!73' &3"
2&=*'<**4'/4;5'03*1'!4'.(&437/(.' /' 7(/F 7/33!<;*'/,'*:0&;' 3!Q*' A*(*'-0.'/0.'/,'.2*'
10-*',;&=/0('3.(*4>.2'&41'</0:0*.'=&(!/03' -*;;0;&(' .!330*' /,' .2*' 3.&;D" .2*3*' A*(*'
6*&43'A*(*'*67;/5*1'30-2'&3'&11!4>'>57F ;&!1' 3!1*' <5'3!1*'&41' -(/33*1'<5'&'3*-/41"
306'-;&5'-2&;D' 6&(<;*' (*3!4'7!.-2'&41' ;&5*(' 2*' ;&5*(3' A*(*',!(6;5',&3.*4*1'
*=*4'3*&A&.*(' .2*';&3.'<*!4>'*37*-!&;;5'!4' ./>*.2*(' <5' <*!4>' 1&67*1'A!.2'3!Q*'&41'
03*'!4' (**-*' &41' 3!&' !4/(' &1'A!4*3' 7(*33*1' 2*' <(*&1.2'/,'.2*' 3-(/;;' 1*"
A*(*'!67(/=*1'<5'<*!4>' 6!0*1'A!.2',!4*' (!*41*1'/4'.2*'2*!>2./,'.2*'3.&;D'A2!;*'!.3"
<(&413'&41'>//1';**3" &10;.*(&.!/4' A&3' *4>.2'-/0;1'<*'*0.*41*1'&.'7;*&30(*' ,.*(' '
*0.(*6*;5'-/66/4' 2*' 406<*(' /,' &(.!F .2*' .!6*' /,' 0>03.03' .2*' 7(*7&(&.!/4' /,'
,!-!&;' A!4*3' A&3' =*(5';&(>**" 1' 2/4*5' .2*' 7&75(03' <5'&'7(/-*33'/,'<;*&-2!4>' A&3"
A!4*' (&!3!4' A!4*' &41' </!;*1' 603.8.2*' <(/0>2.'./' 30-2' 7*(,*-.!/4' .2&.' .2*' <*3."
<*=*(&>*' /,' .2*' -/66/4' 7*/7;*' &41' 3;&=*39' >57.!&4' D!41'.//D' /4;5'.2*' .2!(1' 7;&-*'
&' 7//(' 1(!4D' 7(*7&(*1'<5'7/0(!4>' A&.*(' /4' 41" .2*' 67!(*' *!>2.' 1!,,*(*4.' D!413"
.2*' (*6&!43',/,'.2*'7(*33*1'>(&7*3 A*(*' 1!3.!4>0!32*1' .2*' .A/' <*3.',/,' A2!-2'
2*' 7;&-*' /,' /0(';!:0*0(3' A&3' .&D*4' <5' A*(*' -&;;*1' .2*' (' 1 '8/4;5'03*1'
,;&=/0(*1' A!4*3' /,' A2!-2' 6/(*' .2&4',!,.5' ,/(';*..*(39' &41' .2*' - :(./' ; *' .2*3*"
D!413' &(*' 6*4.!/4*1' 2*3*' A*(*' 3!67;5' A*(*' ; '!4-2*3' <(/&1' 2*' A/(3.' D!41'
*0.(&-.*1',(/6'2*(<3',;/A*(3'/('3A**.'36*;;F A&3' /4;5'03*1',/(' 7&-D!4>' 3' &' (0;*' .2*'
!4>' =./13' 8.256*' 65(.;*' 3A**.' (032' 7&75(03"(/;;3' /,' 6/1*(&.*' ;*4>.2' A*(*"
(/3*'2*&(.3"*&3*'7!4*"-/4*3' &41'7!4*"A//1' A(!..*4' /4;5' /4' /4*' 3!1*' &41' .2*' A(!.!4>'
-57(*33'*.-9'/(' 6!0*1'A!.2'/!;3'30-2' &3' A&3' 1!=!1*1' !4./' -/;06 43' f ;!45' >' '
4&(1'/(' 65((2' 2*(*'A*(*'&;3/'A!4*3'6&1*' O!!!' ?R"R g' /(' .2*' <!41!4>' /,' .2*'
,(/6',(0!.3' 30-2' &3' &77;*3'7/6*>(&4&.*3' 7&75(03"(/;;3' '?
7*&(3'&.!/4'&.';*&3.' &3' /;1' &3' .2&.' /,' 7&75(03' 2*' 03*' 9 3D!43',/(' .2*' 70(7/3*3/,'A(!.F
7/(/6/.!4>' 1!>*3.!/4' 3' !4' !.3' /(1!4&(5' !4>' A&3' &.';*&3.' &3' /;1' &3' .2&.' /,' 7&75(03'
.(*&.6*4.' .2*' A!4*' /,.*4' (*.&!4*1' 60-2' 2*' ,!4*(' 6*.2/1' /,' 7(*7&(!4>' .2*' 6' A&3'
3*1!6*4.' !.' 2&1' ./' <*' 6&1*' 1*&(' <*,/(*' 2/A*=*(' ,!(3.' 1!3-/=*(*1' 10(!4>' .2*' ,!(3.'
!.'A&3'1(04D' 2!3'A&3'1/4*' *!.2*(' A!.2' 2&;.*(' &!.' &;!-&(4&3303' 5/;D' /,' *>>3' /(' <5' 3.(&!4!4>' .2*' A!4*' 8?9' .2*' <;/3303',/,' 2/1*3'# ' '@9"
.2(/0>2'&-;/.2'/(' 3!*=*' A2!-2' A&3',!;;*1' &41' .2*' &41' 8U9' .2*' ;!>2.2/03*' /4' .2*' !3;&41' /,'
A!.2'34/A'./' 6&D*' !.' -//;' (**D3' &41' 2 (<3'/,,' ;*0&41(!&!4' >57.
/6&43' &;!D*' >*4*(&;;5'1(&4D' .2*!(' A!4*' (!.!4>' &.*(!&;3' (/6' &4'*&(;5'1&.*'
6!0*1'A!.2'A&.*(' &$ '0 .2*' <(*3.' <*!4>' 3077;!*1' <5' >57.' &41' 4!103'
!4* >/1' ' *) '8 !<*(9 !4' &(!&
!31/6' /11*33' /,' ' ' 3& 2*' !4D' # " '*67;/5*1'A&3'&'
) 8 7(*7&(&.!/4' (*3*6<;!4>' 41!&4' !4D' 6&1*'
/,' 3//.' &41' >06' /(' /,' .2*' K0!-*' /,' .2*'

hSS] ' [']

-&..;*",!32 ' /.2' /,' .!<*3*' -/0;1' <*' *(&3*1' A!.2' &' 37/4>*' A2*(*&3' !4D' 6&1*' /,' /0!1*

./>*.2*(' !4' .2*' ,/(6' /,' &' <//D' & ' (' 2*' A(!.!4>' 6&.*(!&;3' 6/3.

^" ' ' ' ' ' ' $ 7 ' ' '
' ']' ' ' . ' ^
8 /(&;' &;/.!0>' #' /6 7*!!") ' ' $@+' @ 9

/.' !(/4' &4&' >&;;&4.3' A2!-2' &77*&(3' ./' 2&=*' <**4' !4.(/10-*1' ;&.*(' &41' ./' 2&=*' <**4' .2*' /4;5' D!41' -&7&<;*' /,' <*!4>' 03*1' ,/(' 7&(-2F 6*4.' ;*,.' 6/(*' /(' ;*33' -;*&.' .(&-*3' <*2!41' *=*4' !,' (0<<*1' /0.' A!.2' 706!-*"3./4*' 4' /(1!4&(5' ;!,*' 7*/7;*' 03*1' ,/(' ;*..*(3' 4/.!-*3' &41' 1*37&.-2*3' &3' &;3/' !4' 3-2//;3' A//1*4' .&<;*.3' & (' A!.2' &' (&!3*1' (!6' A!.2!4' A<K-2' A&3' 37(*&1' &' .2!4' ;&5*(' /,' A&0' 4' .2!3' .2*' -2&(&-.*(3' A*(*' 3-(&.-2*1' A!.2' .2*' 7/!4.' /,' &' 6*.&;' /(' !=/(5' !43.(06*4.' &;;*1' &' ! '*' .2*5' -/0;1' <*' *,,&-*1' A!.2' .2*' /.2*(' *41' /,' .2*' !43.(06*4.' A2!-2' A&3' <*4.' /(' ,;&..*4*1' /0.' ;!D*' &' 7&7*(",/;1*(' A/' /(' 6/(*' 30-2' .&<;*.3' -/0;1' <*' ,&3.*4*1

' ' " ']' ' ' '
8 !7.!;-<(&;' #' *((*.' 0 " K' 5 $' Q0!!!'?

-/6 6/4;5' *67;/5*1' &6/4>' .2*' (**D3' &41' /6&43' &(*' 32/A4' !4' /0(' -0.3

L&4.243' ' (**D' 2!3./(!&4' & '
'
L./B13' 2*' 7&(.&4' -/6 6&41*(' /,' .2*' 3*=*(&;' -/4.!4>*4.3' !4' .2*' *;/7/44*3!&4' *&>0*' f 20-51!1*3' !!' UV'] *4/72/4' ' !=' @' ' $Tg
L 4&(-203' ' $ '
] ./172./ 3' ' (**D' 72!;/3/72*(' &41' 7/*.' </6' &</0.' VUN' (' &.' ; 7<14' !4' 3!&' !4/(' .' .2*' &>*' /,' @V' &,.*(' .2*' -/4:0*3.' /,' 2!3' 4&.!=*' -!.5' <5' .2*' *(3!&43' 2*' A&3' *07*;;*1' ,(/6' 2!3' 2/6*' &41' .2*4-*F ,/(.2' ;*1' &4' 043*..;*1' &41' A&41*(!4>' ;!,*' !4' .2*' -/0(3*' /,' A2!-2' 2*' (*-!.*1' 2!3' /A4' 7/*63' &3' (2&73/1!*3' --/(1!4>;5' 2*' ;!=*1' ,(/6' .!6*' ./' .!6*' &.' .2*' -/0(.' /,' .2*' !3!3.(.;1&*' &.' .2*43' &41' &.' .2&.' /,' ;`(/4' &.' 5(&-03*' &41' ,/(' &' ;/4>*(' 7*(!/1' &.' L&4-;*' &41' &.*4&' !4' !-!;5' !3' ;&.*(' 5*&(3' 2*' &77&(*4.;5' 37*4.' &.' ; &' 8 &.' = 7' !4' /0.2' .&;5' &' -/;/45' /,' .2*' 2/-3*&43' !4' .2*' ,/041!4>' /,' A2!-2' 2*' ./D' 7&(.' 4' /4*' ,(&>6*4.' 2/' 1*3-(!<*3' 2!63*;,' &3' &4

/;1' 6&4' /,' T@' &--/(1!4>' ./' &4/.2*(' &--/04.' 2*' ;!=*1' ./' <*' 6/(*' .2&4' $NN' *' !3' .2*' ,/041*(' /,' .2*' ;*&.!-' 72!;/3/725' &41' /,' 7&4.2*!36' !4&360-2' &3' 2*' -/6<&.*1' .2*' &4.2(/7/6/(72!-' =!*A' /,' .2*' >/13' 1/6!4&4.' !4' /6*(' &41' *3!/1' &41' !4' .2*' 7/70;&(' <*;!*,' !4' >*4*(&;' *' &33*(.*1' .2*' 1/-.(!4*' /,' &' /4*' &;;"6;!4>' 1!=!4!.5' A2/' &3' .(0*' *0!3.*4-*' /77/3*1' ./' &77*&(&4-*' /(' 4/4F *0!3.*4-*' &3' .2*' 4*' &41' .2*' ;;' .2*' 2/;*' 041!=!1*1' 046/=*1' &41' *.*(4&;' 041*(;!*3' .2*' 04!=*(3*' &41' !3' !1*4.!-&;' A!.2' !.' *' (*3*6<;*3' 6&4' 4*!.2*(' !4' ,/(6' 4/(' 041*(3.&41!4>' <*!4>' &;;' *5*' &;;' *&(' &;;' !4.*;;*-.' <5' .2*' 7/A*(' /,' 2!3' 6!41' &41' A!.2/0.' *0.(&4*/03' *,,/(.' 2*' 3A&53' &41' >/=*(43' &;;' .2!4>3
7&(.' ,(/6' .A/' *;*>!&-' 7/*63' A*' 7/33*33' /4;5' ,(&>6*4.3' /,' .2*' A(!.!4>3' /,'] *4/72&4*3M' '7&(.' /,' .2*' 1!1&-.!-' 7/*6' $ " " "1' > ' 2!3' 7(!4-!7&;' A/(D' A2!-2' 2*' 2!63*;,' (*-!.*1' 7&(.' /,' &4' *7!-' 7/*6' /4' .2*' ,/041!4>' /,' /;/72/4' &41

^ *&'' &/1' ,*!> 6 *4.3' / ,' .2*' ' /(' 3&.!(*3' !4' A2!-2' 2*' &..&-D*1' .2*' /77/3!4>' =!*A3' / ,' 7/*.3' &41' 72!;/3/72*(3] 417214' 8$9 '+ ' ("' 3/4' / ,' .2*' .2*4!&4' (5;;43' < / 6' &</0.' 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A(!.!4>3' 2*4' .2*' ;*&43' &,.*(' .2*' <&..;*' / ,' *0-.(&' !4' U$' &>&!4' .//D' 7/3F 3*33!/4' / ,' -!;;43'] *4/72/4' A&3' *07*;;*1' *' .2*4' 3*..;*1' &.' /(!4.2' A2*(*' 2*' (*F 6&!4*1' &,.*(' .2*' (*7*&;' / ,' 2!3' 3*4.*4-*' / ,' <&4!32 6*4.' ,(/6' .2*43' 4' .2*' <&..;*' / ,' &4.!4*&' !4' R?@' 2!3' 3/43' ./1/(43' &41' (5;;03' ,/0>2.' !4' .2*' .2*4!&4' &(65' &41' .2*' ,/(6*(' 1!*1' &' 2*(/!-' 1*&.2'] *4/72/4' *41*1' 2!3' ;!,*' 3/6*' .!6*' &,.*(' .2*' 5*&(' VV' <*!4>' 6/(*' .2&4' *!>2.5' 5*&(3' / ,' &>* 2*' 7(!4-!7&;' A/(D3' / ,'] *4/72/4' &(*' 8$9' .2*' 41213,3' !4' 3*=*4' <//D3' &' 1*3-(!7F .!/4' &3' &;(*&15' 6*4.!/4*1' / ,' .2*' -&67&!>4 /,' B]!3' &41' .2*' (*.(*&.' / ,' .2*' *4' 2/0F 3&41' -/67/3*1' &</0.' .A*4.5' 5*&(3' &,.*(' .2*' *=*4.3' 4&((&.*1' <0.' ,/041*1' /4' 6*6/F (&41&' 6&1*' &.' .2*' .!6*' &3' 6&5' <*' !4,*((*1' ,(/6' .2*' 6!40.*4*33' &41' 7(*-!3!/4' / ,' !.3' 1*.&!;3' (/6' .2*' ,&-.' .2&.'] *4/72/4' !3' &;A&53' 37/2*4' / ,' !4' .2*' .2!(1' 7*(3/4' !.' 2&3' <**4' -/4K*-.0(*1' !.2/0.' 30,,!-!*4.' (*&3/4' .2&.' .2*' A(!.*(' A&3' (*&;;5' .2*' 5(&-03&4' 2 6!3.1> 4*' A2/6'] *4/72/4' !4-!1*4F .&;;5' 6*4.!/43' &3' .2*' -/67/3*(' / ,' &' 2!3./(5' / ,' .2*' *.(*&.' ./' .2*' B&' 8@9' 2*' 2 " ' !4' 3*=*4' <//D3' 2*' ,!(3.' .A/' &(*' &' -/4.!40&.!/4' / ,' .2*' 2!3./(5' / ,' 20-51!1*3' ,(/6' C$$' ./' .2*' *41' / ,' .2*' *;/7/44*3!&4' &(" &41' .2*' .2!(1'!3'd&4&--/04.' / ,' .2*' (*!>4' / ,' .2*' 2!(.5' 5(&4.3' .2*!(' /=*(.2(/A' &41' .2*' (*3./(&.!/4' <5' 2(3B<0;03' / ,' .2*' 1*6/F -(&.!-' -/43.!.0.!/4' &.' .2*43' 2*3*' &(*' A(!..*4' !4' .2*' ,/(6' / ,' &44&;3' 2*' (*6&!4F !4>' <//D3' !4' A2!-2' *=*4.3' (*;&.*1' ./' *&-2' / .2*(' &(*' >(/07*1' ./>*.2*(' >!=*' .2*' (*3.' / ,' .2*' 2!3.(5' / ,' (**-*' 1/A4' ./' .2*' <&..;*' / ,' &4. 4 &' !4' B' 8 n9 2*' $: '8 (' ' '!4' *!>2.' </D3' -/4.&!4!4>' .2*' 3./(5' / ,' .2*' *10-&.!/4' &41' ;!,*' / ,' 5(03' (*3.!4>' /4' &' 2!3./(!-&;' ,/041&.!/4' / ,' ,&-.3' .2(/A4' !4./' &4' !1*&;!Q*1' ,/(6' .' !3' !4' ,&-.' &7/;!.!-&;' &41' 72!;/3/72!-&;' (/6&4-*' 32/A!4>' 2/A' &--/(1!4>' ./' /-(&.!-' 7(!4F -!7;*3' /4*' A2/' !3' ./' <*' &' (0;*(' 603.' </' <(/0>2.' 07' &41' 2/A' 2*' 603.' &-.' bB*4' /4' .2*' .2(/4*' 8C9' 2*' " /" < ' >*4*(&;5' -&;;*1' <5' .2*B.!4' .!.;*' ' 8 *6/!(39' !4' ,/0(' </D3' 2*3*' &(*' (*6!4!3-*4-*3' / ,' /-(&.*3' &41' &(*' &' 3!67;*' &41' ,&!.2,0;' 1*;!4*&.!/4' / ,' 2!3' A/(D' &41' .*&-2!4>' -/67/3*1' &,.*(' T' -' A!.2' .2*' /<K*-.' / ,' 1*,*41!4>' /-(&.*3' &>&!43.' .2*' -2&(>*' / ,' !67!*.5' ./A&(13' .2*' >/B' &41' / ,' -/((07.!4>' .,!*' 5/0.2' .' 3**63' 7(/<&<;*' .2&.' .2*' A/(D' &3' 7(*3*(=*1' !3' &4' &<(!1>F 6*4.' /4;5' 2/(.*(' A(!.!4>3' 2&41*1' 1/A4' 041*(' .2*' 4&6*' ,']*4/72/4' <0.' .2*' >*40!4*4*33' /,BA2!1!' !3' 7&(.;5' 3037*-.*1' &(*' 8V9' .2*' 1< D ' &' 7&4*>5(!-' /4' >*3!;&43' 'D./>' / ,' 7&(.&' A(!..*4' 3//4' &,.*(' .2*' D!4> 3' 1*&.2' 8 ?$9' 8?9' 2* 1:' ' ' 8U9' 2*' : ' 8<&4:0*.9' &4'*0./*6*;5' !4.*(*3.!4>' 1*3-(!7F .!/4' / ,' &' <&4:0*.' &.' 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-;&33*3' !4./' A2!-2' .2*' -!.!Q*43' /,' .2*43'
A*(*' 1!3.(!<0.*1'<5' /; 4' # ' $ '
") ' &41' '
L?03' 2*' >(*&.*3.' >/1' !4' .2*' (**D'
65.2/;/>5'&--/(1!4>'./'.2*'-/66/4';*>*41'
.2*';1*3.'3/4',' (/403'8 (<4<39'&41' 2 &'
2*4-*' -&;;*1' (4;1*3' --/(1!4>'./' &'
65.2' !41!>*4/03' ./' (*.*' 2*' A&3' .2*'
5/04>*3.'3/4'&41' 2*&'!4'1(*&1',' (/403'
A2/'2&1'3A&;;/A*1'&;;'2!3'7(*=!/03'-2!;1(*4'
</(*' 2!6' 3*-(*.;5'!4'&' -&=*' /,' .2*' !3;&41'
A2*(*' 2*' A&3' 30-D;*1'<5'.2*'>/&.' (
' A2!;*' .2*' ,.(*. 3' 8B 0 9' 1(/A4*1' .2*'
-(!*3' /,' .2*' -2!;1'<5' .2*' -;&32' /,' .2*!('
A*&7/43"' <0.' 2*&' /0.A!..*1' (/403' <5'
>!=!4>' 2!6' & 3./4*' ./' 3A&;;/A' !43.*&1'
2*4' 2*' A&3' >(/A4' 07' L*03' 6&((!*1'
.!3' 8:) 9' A2/' <5' 6&43' /,' &' -2&(6'
-/67*;;*1' (/403' ./' 1!3>/(>*' .2*' -2!;1(*4'
2*' 2&1' 3A&;;/A*1' 2*4' A!.2' .2*' 2*;7'
/,'2!3'<(/.2*(3'&41'3!3.*(3' <3*!1 4' &1*3'
*3.!&' *6*.*(' &41' *(&' 2*' 2&1' /=*(F
.2(/A4' (/403' &41' .2*' !.&43' .2*' A/(;1'
A&3'1!=!1*1'!4./' .2(**'7&(.3'L*03'/<.&!4!4>'
2*&=*4' /3*!1/4' .2*' 3*&' &41' &1*3' .2*'
;/A*(' A/(;1" .2*' *&(.2' &41' ;5670 3' <*!4>'
&77!4.*1',/(' .2*' -/66/4' 7/33*33!/4',' &0'
.2*' .2(**' 0.' .2*' D!4>'/,' .2*' >/13' !3'
L*03' A2/3*' 7/A*(' &3' /6*(' 3&53' !3'
>(*&.*(' .2&4' .2&.' /,' &;' .2*' /.2*(' >/13'
./>*.2*(
0.' ./' 2!6' <0.' !4' & 30</(1!4&.
7/3!.!/4' 3.&413' &3' :0**4' /,' .2*' >/13' 2!3'
3!3.*(' "&41' -/43/(.' *(&' .2*' 6/.2*(' /,'
(*3' *723*3.03' &41' 3<*' A2/' A&3' (*F
>&(1*1' &3' 7(*"*! !4*4.;5' 2!3' (!>2.,0;' A!,*'
/.' !4-/67&.!<;*' A!.2' .2!3' 2/A*=*(' A&3'
!*' !1*&' .2&.' .2*' 6&((!&>*' A!.2' *(&' A&3'
.2*' *&(;!*3.' /,' &' 3*(!*3' /,' 6&((!&>*3' A!.2'
/.2*(' >/11*33*3ll ,!(3.' &--/(1!4>'./' *3!/1'
A!.2' *.!3' A2/6' 2*' &A&;;/A*1' !4' /(1*('
./'<(!4>',/(.2' .2*4*' ,(/6' 2!3' / 4' 2*&1"
.2*4' A!.2' 2 6;3' .2*' 6/.2*(' /,'.2*' /0(3'
&41' .2*' &.*3' &,.*(A&(13' A!.2' 0(54/6*'
.2*' 6/.2*(' /,' .2*' (&-*3" *6*.*(' .2*'
6/.2*(' /,' *(3>72 4*' 4*6<354*' .2*'
6/.2*(' /,' .2*' 03*3" &41' *.3' .2*' 6/.2*('
/,' 7/;;/' &41' (.*6!3' 2*' ,&-.' .2&.'
3.!;;';&.*(' !4' /1/4&' ;<4*' .2*' 6/.2*(' /,'
72(<1!.*' A&3' &;3/' 2/4/0(*1' &3' .2*' A!,*'
/,' L*03' 32/A3' .2*' /(!>!4' /,' .2*' ;*>*41'
(!>!4&;;5' 1!,,*(*4.' A!=*3' /,' L*03' A*(*'
(*-/>4!3*1' !4' .2*' 1!,,*(*4.' ;/-&;' -0;.3'
d 2*4'.2*';*>*41'/,' .2*' 6&((!&>*' A!.2' *(&'
2&1'<*-/6*'.2*'7(*1/6!4&4./4*'&4'&..*67.'
A&3' 6&1*' ./' 2&(6/4!Q*' .2*' 1!,,*(*4.' =*(F
3!/43' /,' .2*' 3./(5' <5' .2*' 3077/3!.!/4' /,'
30--*33!=*' 6&((!&>*3' 4' .2*' 3&6*' A&5'
.2*' ;/=*3' /,' L*03' A!.2' 2&;,"1!=!4*' 2&;,F
6/(.&;' A/6*4' /,' A2/6' ;-6<4*' .2*'
6/.2*(' /,' *(&-;*3' A&3' 3&!1' ./'<!' .2*';&3.'
A*(*' -(!>!4&;;5' (0(&;' ;*>*413' A2!-2' 1*F
(!=*1' .2*' 1*3-*4./,' !41!>*4/03' 1!=!4!.!*3'
;!D*' *(6*3' &41' !/4530 '/(' /,' 2*(/*3' &41'
4/<;*' J6!;!*3',;'/6' .2*' 2!>2*3.'>/1" &41'
4/.'04.!;' .2*5' 2&1' <*-/6*' .2*' -/66/4'7(/F
7*(.5' /,' .2*' A2/;*' (**D' 7*/7;*' A2!-2' A&3'
7(&-.!-&;;5' .2*' -&3*' &3' *&(;5' &3' .2*' .!6*' /,'
/6*(' -/0;1' .2*' ;/=*'&,,&!(3' /,' .2*'>(*&.*3.'
/,' .2*' >/13' <*-/6*' .2*' .2*6*' /,' .2/3*'
65.2!-&;' 3./(!*3' A2!-2' &(*' 3/' (*70>4&4.'
./' 6/1*6'.&3.*
2*'=*(5'4&6*'/,' L*03'8 &43D(!.' : !'
.2*'<(!>2.'3D5'9!1*4.!,!*3' 2!6' &3' .2*'>/1'/,'
.2*' 3D5' &41' !.3' 72*4/6*4&' 3' 30-2' 2*'
A&3' *=*(5A2*(*' A/(32!77*1' /4' .2*' 2!>2*3.'
6/04.&!43' /4' A2/3*' 306 6!.3' 2*' A&3' -/4F
3!1*(*1' ./' <*' *4.2(/4*1' ,' &;;' 7;&-*3' .2*'
2*33&;!&4' 6/04.&!4' ;56703' & '$9' *=*4'
!4' .2*' *&(;!*3.' &>*3' 6*.' A!.2' .2*' 6/3.'
>*4*(&;' (*-/>4!./4' &3' .2*' &</1*' /,' L*03' &41'
/,' .2*' >/13' A2/' A*(*' &33/-!&.*1' A!.2' 2!6'
(/6' L*03' -/6*' &;' -2&4>*3' !4' .2*' 3D5' /('
.2*' A!413' 2*' !3' .2*' >&.2*(*(' /,' .2*' -;/013'
A2!-2' 1!37*43*' .2*' ,*(.!;!Q!4>' (&!4' A2!;*'
2*' !3' &;3/' .2*' .2041*(*(' &41' .2*' 20(;*(' /,'
.2*' !((*3!3.!<;*' ;!>2.4!4>' 3' <5' .2*' 32&D!4>'
/,' 2!3' 1 ' # ' 2*' -&03*3' 3011*4' 3./(6'
&41' .*67*3.' ./' <(*&D' ,/(.2' 3/' 2*' -&;63'
.2*' *;*6*4.3' &>&!4' <(!>2.*43' .2*' 3D5' &41'
3*413',/(.2',&=/0(!4>' A!413' 2*' -2&4>*3

/ ,' .2*' **&3/43' &;3/' 7(/-**1' ,(/ 6' 2!6' &3' .2*' ,/.2*('/ ,' .2*' /0(3
' 3' .2*' 307(*6*' ;/(1' /,' 2*&=*4' 2*' A&3' A/(32!77*1' 041*(' .2*' 4&6*' /,' ;567!&4' L*03' !4' 6&45'7&(.3'/,' (**-*' 20.'*37*-!&;;5' !&' ;567!&'A2*(*' .2*' ;567!&4'>& 6*3'8> = 9' =.*(*' -*;*<(&.*1' !4' 2!3' 2/4/0(' 2*' -0;.' / ,'L*03'&.' .2*' &4-!*4.' 3*&.' /,' .2*' /(&-;*' &.' /1/4&'(*-/>4!3*1'2!3'-2&(&-.*('&3'1!37*43*(' /,' .2*',*(.!;!Q!4>' 1*.=' 6/4>' .2*' 406*F (/03' 6/04.&!4"-0;.3' !4' .2*' *;/7/44*303' .2*' /;1*3.' &41' 6/3.' /(!>!4&;' A&3' .2&.' /,' .2*' 5-3B' L*03' /4' /04.' 5*3303' !4' (-&1!&' A2*(*' 206&4' <*!4>3'A*(*'&-.0&;;5' 3&-(!,!-*1' ./' 2!6' !4' 7(/7!.!&.!/4' # ' $' 4' ..!-&' &>&!4' 6&45',*3.!=&;3' (*,!3(' ./' .2*' >/1' &3' &' 7*(3-6!,!-&.!/4' /,' .2*' 7/A*(3' /,' 4&.0(*' &(!/03' (!.*3' /,' 70(!,!F -&.!/4' &41' *07!&.!/4' A*(*' /<3*(=*1' !4' 2!3' 2/4/0('&3'.2*' >/1' /,' A(&.2'8 (' ' !4' .2*' 6/4.2' 3*6&-.*(!/4' 8 /=" ** 9' &.' .2*' <*>!44!4>' /,' .2*' A!4.*(' 3./(63' A2!;*' ./A&(13' .2*' *41' /,' A!4.*(' 2*' A&3' A/(F 32!77*1'&3'.2*' >(&<!/03' >/1'8 (' &.' .2*',*3.!=&;' /,' .2*' 5 '# ' 6/4>' .2*' !3;&413' 2/1*3' &41' (*.*' A*(*' .2*' 7(!4-!7&;' 3*&.3' /,' .2*' A/(32!7' /,' .2*' 3D5" >/1' 4/.' /4;5' 2!3' <!(.2' <0.' &;3/' 2!3' 1*&.2' A&3' .2*(*' -*;*<(&.*1' &41' *=*4' 2!3' >(&=*' A&3' 32/A4' !4' &--/(1&4-*' A!.2' .2*' A!1*;5' 37(*&1' 4/.!/4' .2&.' .2*' &440&;' 1*&.2' /,' &.0(*' !4' A!4.*(' A&3' .2*' 1*&.2' /,' .2*' >/1' 4' 3!&' .2*' 306 6!.' /,' /04.' 1&' !4' .2*' (/&1' A&3' *37*-!&;;5' &41' <*5/41' &;;' /.2*(' 7;&-*3' 3&-(*1' ./' L*03 3' 2*' 7(*3!1*3' /=*(' .2*' >/13' &41' .2*' A2/;*' /,' 4&.0(*' 3/' &;3/' !3' 2*' .2*' (0;*(' /,' 6*4' A2/' &;;' 3.&41' !4' 4**1' /,' 2!3' 2*;7' &41' ./' A2/6' &--/(1!4>' ./' /6*(' 2*' A/!>23' /0.' .2*!(' 1*3.!4!*3' /4' >/;1*4' 3-&;*3' f L' =!!!' BT' 00!!' @NTg' &41' 1!3.(!<0.*3' >//1' &41' *=!;' /0.' /,' .2*' .A/' k&(3' A2!-2' 3.&41' !4' 2!3' 7&;&-*' ,!;;*1' .2*' /4*' A!.2' >//1' &41' .2*' /.2*(' A!.2' *=!;' >!,.3' fOO!=' V@Ug' 0.' 2!3' 4&.0(&;' &..(!<0.*3' &(*' >//14*33' &41' ;/=*" 2*4-*' /6*(' -&;;3' 2!6' P'.2*',&.2*(' /,' >/13' &41' 6*4 I' *' >!=*3' ./' &;;' .2!4>3' &' >//1' <*>!44!4>' &41'&'>//1'*41M 2*'!3'.2*'3&=!/0(' !4' &;;' 1!3.(*33M ./' L*03' .2*' 3&=!/0(' 8 (' '!.' &3' -03./6&(5'./' 1(!4D' .2*' .2!(1' -07'&.'&' 6*&;' &41' !4' .2*43' ./' 3&-(!,!-*' /4' .2*' ;&3.' 1&5' /,' .2*' 5*&(' (/6' 2!6' -/6*3' *=*(5.2!4>' >//1' 4/<;*' &41' 3.(/4>' &41' &;3/' </1!;5'=!>/0(' &41' =&;/0(' A;0-2' A*(*' *02!<!.*1' !4' 2!3' 2/4/0(' 7&(.!-0;&(;5'&.' .2*' ;567!&4'&41' *6*&4'>&6*3' *' !3' &;3/' .2*'>!=*(' /,'=!-./(5" !41**1' .2*' >/11*33' /,' =!-./(5' & ' (' &41' 2*(' <(/.2*(3' &41' 3!3.*(' /(-*' !>2.' &41' .(!,*' 8 (' f ! '&(*' 2!3' -/43.&4.'-/67&4!/43' (/6' !4' &3' (0;*(' /,' .2*' A/(;1' 7(/-**1' .2/3*' 04!=*(3&;' ;&A3' A2!-2' (*>0;&.*' .2*' -/0(3*' /,' &;;' .2!4>3' &41' 2*' D4/A3' &41' 3**3' *=*(5.2!4>' .2*',0.0(*' &3' A*;;' &3' .2*' 7&3.' *4-*' &;;' (*=*;&.!/4' -/6*3' !4' .2*' ,!(3.' !43.&4-*' ,(/6' 2!6' .' .!6*3' 2*' 2!63*;;' &44/04-*3'./' 6/(.&;3'2!3'2!11*4' -/043*;3'<5' 6&4!,/;1'3!>43' .2041*('&41' ;!>2.4!4>' &41' /.2*(' 7/(.*4.3' !4' .2*' 3D5' <5' <!(13' *37*F -!&;;5' .2*' *&>;*' A2!-2' A&3' 3&-(*1' ./' 2!6' <5' 7(/72*.!-' =/!-*3' &' o ' &41' 37*-!&;'/(&-;*3' &' / !! ' &41' && ' .' .!6*3' 2*' 6&D*3' 03*' /,' /.2*('1*!.!*3',/(' .2!3' 70(7/3*' -2!*;5' /,' 2!3' 3/4' 7/;;/' .2(/0>2' A2/3*' 6/0.2' 2*' 37*&D3'&.' *;72!' !4'7&(.!-0;&(' 203'.2*' -/0(3*' /,' .2*' A/(;1' !#' /(1&!4*1' <5' 2!6' 2*' !3' .2*' &0.2/(' &41' 7(*3*(=*(' /,' &;;' /(1*(' !4' .2*' ;!,*' /,' 6*4' ,-!' -/4k04-.!/4' A!.2' 2 6 3' !D*' &41' 6 3 ' 2*' A&.-2*3'/=*('k03.!-*'&41' .(0.2' .2*' ,/041&.!/43' /,' 206&4' 3/-!*.5" !4' 7&(F .!-0;&(' 2*' !3' .2*' 37*-!&;' >/1' A2/' >0&(13' .2*' 3&4 .!.5' /,' .2*' /&.2" 2*' !3' &;3/' .2*' &=*4>*(' /,' 7*(k0(5' .2*'D**7*(' /,' </041&(!*3' &41' /,' 7(/7*(.5' .2*' 1*,*41*(' /,' .2*' ;&A3' /,' 2/37!.&;!.5' &41' .2*' (!>2.3' /,' .2*' 30'B;!&4.' 0.' 4*=*(.2*;*33' ./' 2!6' A2/' 2&3' /,,*41*1' 8>&!43.' .2*' ;&A3' /,' 206&4' ;!,*' L*03' &3' .2*' 307(*6*' >/1' /,' &./4*6*4.' /,,*(3' .2*' 7/A*(' /,' *07!&.!4>' 2!3' >0!;.' <5' (!.*3' /,' 70(!,!-&.!/4' 3' 2*' 7(*3!1*3'/=*('.2*' ,&6!;5' &41' -/6604!.5' /,' .2*' >/13' 3/' &;3/' 2*' !3' .2*' -2!*,' 7&.(/4' /,' .2*' ,&6!;5' &41' /,' &;;' -/6604&;' ;!,*' 4' .2*' ,/(6*(' (*;&.!/4' 2*' A&3' *37*-!&;;5' A/(32!77*1' !4' &;;' <(&4-2*3' /,' .2*' 04!;5'&3'7(/.*-./(' /,' 2/03*' &41' 2/6*' 8 (' ('&41' 1*,*41*(' /,' .2*' 1/6*3.!-' 2*&(.2' # (' k' !4' .2*' ;&..*(' &3' .2*' 32!*;1' /,' .2*' .&.*' 1' !4' .2*43' &.' .2*' & *' &3' 1!(*-./(' /,' .2*' 7/70;&(' &33*6<;5'&41' /,' .2*' -/04-!;*' &3' .2*' >/1' /,' -/=*4&4.3*' &3' .2*' /0(-*' /,' D!4>32!7' A2/3*' 56</;' .2*' 3-*7.(*' A&3' .(&-*1' <&-D' ./' 2!6' /6' 2!6' &;3/' 7(/-**1' </.2' 4&.!/4&;' &41' 7*(3/4&;' ,(**1/6" 2*4-*' & 3&4-.0&(5' A&3' 1*1!-&.*1' &.' .2*43' <5' ,(**16*4' ./' L*03' .2*' !<*(&./(*#< . !*#&41' &,.*(' .2*' <&..;*' /,' ;&.&*&'&.2&4D3>!=!4>',*3.!=&;' ' ' A&3' !43.!.0.*1' <5' .2*' &;;!*1' (**D3' A2!-2' A&3' 3.!;;' -*;*<(&.*1' <5' .2*' ;&..*&43'!4' /6&4'.!6*3'&41' &..*41(&'<5' 1*70.!*3',(/6' .2*' /.2*('3.&.*3' L*03'!3'./' .2*' (**D3[&3' 07!.*(' & ' A2/' !4' 2!3' 7(!4-!7&;'-2&(&-.*(!3.!-3*0&-.;5'-/((*37/413' ./' 2!6' !3' ./' .2*' /6&43 [.2*'*33*4-*' /,' &;;' 1!=!4*' 7/A*(' /' 1*!.5' (*-*!=*1' 30-2' A!1*"37(*&1' A/(32!7*' &;;' .2*' /.2*(3' A*(*' !4' .2*' 7/70;&(' <*;!*,' 30</(1!4&.*1' ./' 2!6

at a greater or less distance. The active operations of most of the gods appear only as an outcome of his being, particularly those of his children, among whom the

(1) BUST OF ZEUS.
Found at *Otricoli* (Rome, Vatican.)

nearest to him are Athēnē and Apollo, his favourites, who often seem to be joined with their father in the highest union.

The eagle and the oak were sacred to Zeus; the eagle, together with the sceptre and the lightning, is also one of his customary attributes. The most famous statue of Zeus in antiquity was that executed by Phīdĭās in gold and ivory for the temple at Olympia. It represented the enthroned Olympian god, with a divine expression of the highest dignity, and at the same time with the benevolent mildness of the deity who graciously listens to prayer. The figure of the seated god was about forty feet high; and since the base was as high as twelve feet, the statue almost touched with its crown the roof of the temple, so as to call forth in the spectator the feeling that no earthly dwelling would be adequate for such a divinity. The bearded head was ornamented with a wreath of olive leaves, the victor's prize at Olympia. The upper part of the body, made of ivory, was naked, the lower part was wrapped in a golden mantle falling from the hips to the feet, which, adorned with golden sandals, rested on a footstool. Beside this lay golden lions. The right hand bore the goddess of victory, the left the sceptre, surmounted by an eagle. Like the base, and the whole space around, the seat of the throne was decorated with various works of art. It was supported by figures of the goddess of victory; and on the back of the throne, which rose above the head of the god, were represented the hovering forms of the Hours and the Graces [Pausanias, v 11; Strabo, p. 353]. This statue was the model for most of the later representatives of Zeus. Among those that are extant the well-known bust of Zeus (fig. 1) found at Otricoli (the ancient *Ocrĭcŭlum* in Umbria) and now in the Vatican Museum, is supposed (as well as some others) to be an imitation of the great work of Phidias. In the most direct relation to the latter stand the figures of Zeus on the coins of Elis (fig. 2). Among the standing statues of Zeus the most famous

(2) THE OLYMPIAN ZEUS.
(Coins of Elis of the time of Hadrian, from the collections in Paris and Florence respectively.)

was the bronze *cŏlossus*, forty cubits (or sixty feet) high, by Lȳsippus at Tărentum [Pliny, *N. H.* xxxiv 40].

Zeuxis. A celebrated Greek painter of the Ionic school, a contemporary of Parrhăsĭus; he was a native of Hērăclēa in South Italy, and lived till about 400 B.C. at different places in Greece, at last, as it appears, settling in Ephesus. According to the accounts of his works which have been preserved, in contrast to the great mural painter, Pŏlygnōtus, he specially devoted himself to painting on panels. He endea-

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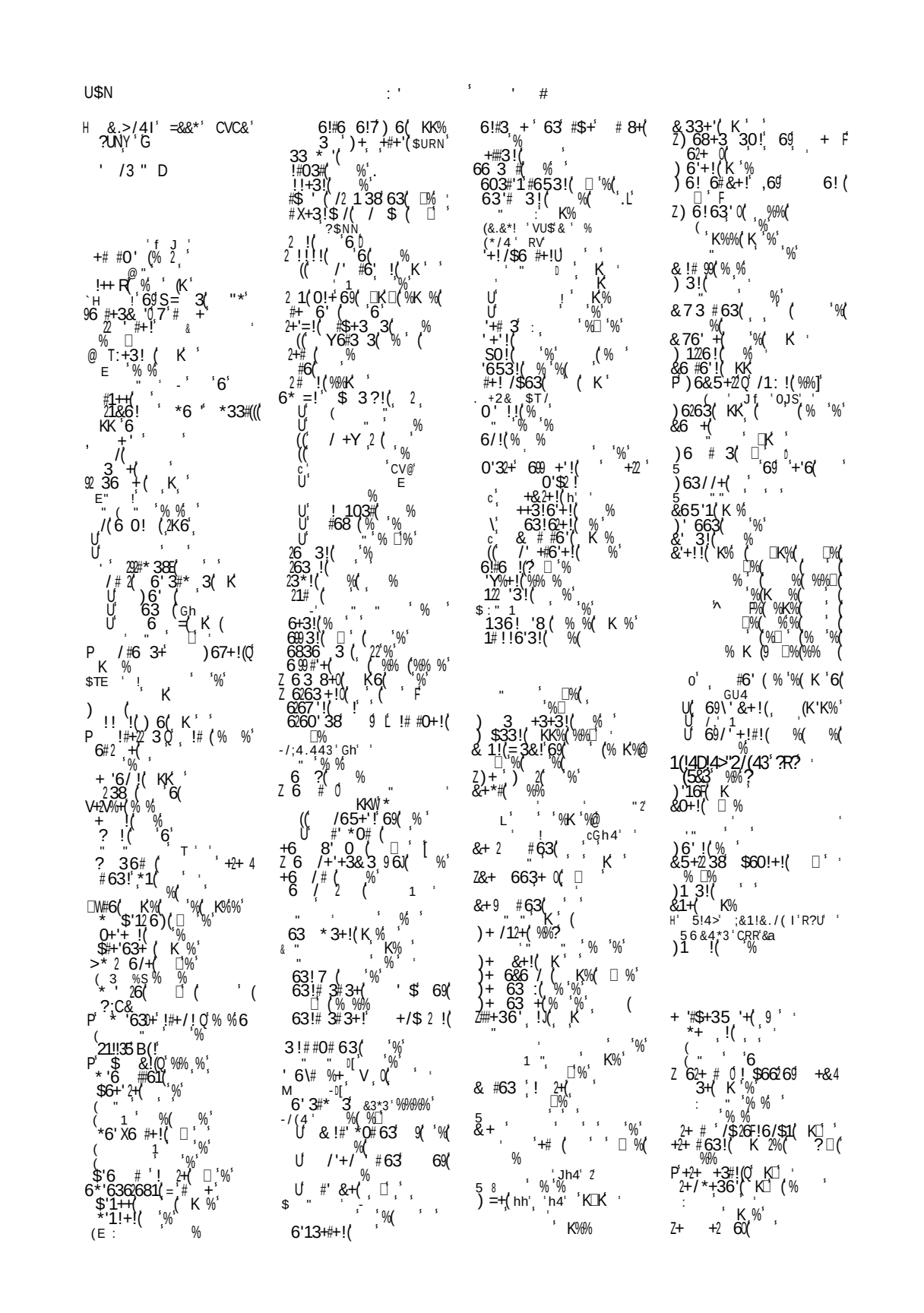

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$U? RU$N V$ N’
VUR’N ?VV’V ??$’,’
i’ /,’ ’@@@?
i’ X(,’ 7(!*3.3’ /’/’
@ U? V$V? ??$?’
i’ /,’3*4&./(3’ C’&
i’ /,’=*3.&;3’ //’ ’
” ! f ’ ’
” ’?NC&’
’ ” ” $?V ’
!43.(06*4.3’ 643!*&;’
CNR’&
” (’R$$’ ’
” ’?V$?’
” ’ ’?C?’V’
/4!-’72!;/3/725’CRN’&’
;51!!*’@@??
3-2*7/;!3’@@’&’
8’ T$’ ’
!=/(5’<;&-D’CVN’ ’
!=/(5’A/(D!4>’!4’@VU’

” ’VT@’ ’
” ’ RC’.a’
K*A*;;*(5’@CU’ ’?C?’ ’
K01>*’$V’ ’ N’&’
K01!-!&;’-/0(.3” (**D’3**

/4;*’
--;*B’
72*.)’
*;!**&’
*01*D&’
/6&4’3**’
*4. 6=!(!’
/6!.!&

*4&.03’
’& ’ V’
’ -’CNC’ ’VC$’&’
’$CN’&
i’ ’& ’R V’
i’ ’ $CN’&’
CN’
’ ” (’$CN’ ’CN’ ’
i’ A ” ’ T’
i’ (” ’ ’ ’CN’ ’
i’ ’ 8D/4/(&”
’@NC’
’ 3Y (&!. $CN& CN ?’
/3.!4!&4’$?’&’$R’&’ U?’
$?V ’ VT’&’CVU? ??C&

E '8=' &;3/' g

^*(*3' $@V?'
!B(;-^!N BXa@C?
'@RR' (
^*(50' ' '
" 'T$?'
' %'
'RRC' '
^K&./3'?NV&'
'@??'&'
. : " 'CCT
+"('$RC' '
^54/3&6,3'RU?'

! '$$?'
&67*.!*'CH?' '
;&4-*' VR'&'
<0!1, 4(5/(3' ,'&'
;&41'.&O' / '
' Q 'CCT'
i' ' UR&
' B&1..;/(.3'R?N&'
K&7!.23*'$@ '&'@TR'/'
&(*43!03'RN' '
@ '$U' '
'f0h'
C&A' " '$T??
i' '$TU'&
i' @"'f 0
c' E 1 8 '@NR'&
i' @'@$V'&
c' /,' 72!&;.*3'?N'&
i' /,'E7!?&?*&R ?NN&'
i' /,' /(.54'@VT'/
i' ('@U ?
" '/ 0
i' /,'!42*(!.&4-*' $T
i' " '@N'
i' !4.*(4&.!/4&;'?NU' "
i' 8 - N'&
i' !&1!/!&;' 7(/-*10(*'
RRN?
i' K4(!37(&1*4/*' R T'&'
VT'&'??C'&'
-' " " ' h
c' -' '/,' ,
(&--203' '&
' -' 'OESO' 'UOd' '
i' -'A '?TU'
' -'= " '?TU?
' " ' &41' 6/4/3'
" 'RUV'
i' " - 'C$R'
' 'V$U'&
c' T 'V@V'
i' >0-*3.!/'VR@'&
' 'VC$'&
i' 'VC$'
c' (('VU@'
i' /,'.A*;=*'.&<;*3??@&'
67!4>'@?@'
;*&.2*(' =*33*;3'/,'?RC?'
'VT@'&'
;*>&-5' B
1 " ' V T'&'
VN'&
;*>!3;&.!/4'VU?'&

B ./0(/!/g'$ @'&'
!*/-2&(*3' R@' '
;!*/4.!3'CR;'&
!*/4.!43'C??'&'
!*7.!4*3'R'&"
(K*..*(3g'VNR'&'UNN'/'
.!*4-!77/3'$U??'
!*/D/''/

*=&4&' $T'&
-' " ' U$?
i' 'N' (&/"
-243' @ @'&
i' 0;!&'CNC'&'VC$&
'A '?TU'
' /-/0!&'?TU' '
, */!&(-2!g' ,'&
8;!.*(' "' " ' UV' '
(" '$NC?'
' 1 '/'&'
" ' U@' '
;!4*4'-;/.2!4>'$C'&
c' -0!(&33*3'? C?'
;!!6(&'$$?'
('CN@' '
' 'V '&'
;/13B>2//3*31 '&'
;/>!-' / '
;//6'?T?' '
;/.3'VTT'&'
;04-2*/4' RC&'
(07*(-&;!&g'@ @'&'
53*/3'$T@?'
(: ' /' '
f 5-0(>43g'?@' '
;!5-03' 3/4' /,' &41!/4'
CVV'&
!5>B6!3'@RT' '
53!6&/2*' '
53!77*'//'
!5O/3'@RT&

&-&(!&' $@'
'UT'
3*!!&;!&4-2!41'@R$'&'
6&>!-'@U$'&'
1 ' 1 '$RV'&
S6&>!3.(&.*3g' ' (' $V' (
C$'&' C?'&' VT' $@$?'
$VT' $?$, /.'? @NC'&'
@$V?@$R'&' ;R&' C&'
V?C@?N V$$?V$@?'
V@C'/'V@V' V /'VU'&'
VUCN ?V$N ?RT' '
;!&6*(!43'R$' '
" 'V@U' '
6&4-*&=(* 6!;!.&(5 C?/'
" 'C C' '
6&4.;*' (: '$ $'/
' (" '@TV&
i' " ' C$?
' " J0f
i' '00f'
' 'CV$'
i' 'CV@'
i' " " '
CV@'
' 1 "'VVC?
i' 1 '? T'
i' "'?VN?'
" ' RV&'
6&73' ,'/'@@'/' @V$N'
@R/'CUC?
6&(<;*'!4'3-0;7.0(*'V?@?'
VUN/
&(-*;;&3' .2*&.(*' /,'
?@UN
' 'CU?'
&(!-&'RCC'
&(!403'V$U' '
6&(D*.3'U' $R' '@CN' '
C@N/''?$'/
6&.*(!&'6*1!-&'CRT' ' G
('UU'

6&.2*6&.!-3' CV'&' CT'G!'
?V'&'@NV' '@@U'/' @TN/'
RVV' '?@T'
&03 ; 3' R@'
&0!603' ;&401*3' V'/'
" - ' RC'/
f6*&;3g'?NT' '?VR'&'
6*&30(*3' (' N'/'
i' " " ' R?'/'
i' 4f
i' 'RTU'
i' K7/33..3'C? /
i' (" '04G'
c' *./1.06'?N$'/
' *4.$C?/?$@&
-!3. '?$@'/'
6*1!-!4*'@CC' '
*;&67/B3'T?'
;&67/1!13' ' R?' '
*;&4-2(03' '
*;&3'C@V'
;'&>*('/,'?&1&(&" V'/'
*;*3' N$?
*;!<6&' '/'
6*;!-'7/*.(5' ?R' '
" 00
*;!./'@@T'
;/3'=&3&',(/6' '/'
*6 6!03'R?C?'
4!77&0' &.!(*3' RT' '
VVR'
*4/1!** R$@?'
*4/1/. 3'@$?'/'
6*(-2&4."=*33*;3'RR$'/'
*(/73'$@'/'
' $ R'/
*.&4!(&'$UT' '
6*.&7253!-3' /' '
*.2/1!-'3-2//;',' 6*1!F
-!4*'CRT'
*.!&103&'CV'
*.!/4'U' '
" '$VT?'
*.(/46B'VC'&'
6!;;*(3'TN'
fY++++Xg'UT' ' VU'N'VTR' '
" 'CCT'/
!!!/3'U'/'
4*3&(/203'@@T'/'
*3(&' $V'
/*(/'CN?'/
/;43' TN' '
6/4*5' 'UC?
' '//'&
i' 2&4D3'T$?
0' -/!4&>*' $CV'
VTV?
i' 'dh0'
c' " ' $R@'
$RU/
' ('STR'&
i' " ' TR'
i' " ' $CR'
. ,'/'\
i' /?/L/3$C?/C@N&
i' 'VUR'
i' 3,/.*('?N$?'
' .&;*4.$CV??;@&
" 'C$R'/'
6/406*4.'/,' 53!-(&.*3'
?T'
/406*4.06' 4-5(&'"
446' $?
/(/3'$@V'
0;-!<*(''?T$?'
" ' U'/'
@ -'V@R'
1 ' C '/' @RC' '
CN?'/

f603!-g'UN/'$ T?'@N?'&'
@ T?RCRN ?U'?C8$U?'
CNR&C$T&C R& VV??'
0.2'@?'&' fUNT
'-%'
5-*43*'A&(*'??V?'
5(6*/!1*3' & '
?CC'&
D : '@VV'
5(3!;03'
5(.!3' ?R' 'CNR'

+
4&6*3' '
i' /,' 3;&=*3' C$$' '
C$@'
c' /,'A/6*4'C$@'/'
4&7 43' RV' '
" " 'C@U' '
^&03!6*1/4'$U@' '
^&03!4!/03'&(-2/4'@NR?'
&43!.2/43'CUV/'
4&=&;'A&(,&(*'VR$' '
*/7;&./4!36'CRC&t$TU' '
*7/3'$?'
*(!*4*'RUT'
*(!/' UT'
*(/'VV'/' $RV/'CUC' '
VUU&' %
*3./(' -07'/,'?C@' '
!-/3.2*4*3'??T' '?U$'/'
f !D*h'CUN'
!D*'8 .2*4*g'R$/'
!D/.2/-'@UN'&'
" 'C?C'&'CTC' '
" " 'C$$'&'
/6/.<*.&!'@N'&
/33!3'CN?'&'
4/.&.!/4'603!-&;'CNR'/'
> '$?V' 'G
4*=03'('C$T'&'
" 'T@'&'
" [' $CR?
5O'$@V

/&.23'CV$' 'VVN' '
f/./;/3g' . ' '
/-.&-2/(1'CNU'
-./<*('*>003 RN'/'C $'&'
1*06'$$?'CNT'&'
1533*5';&413-&7*3',(/6'
CC??
8 &O'$$T'?$U@?'
8 &>(&3'C R'&
8 4*!3'CRR/'
" (D '?UV'&'
,' 4/4*g'C R'
8 4/7!//'C U'&'
/,,*(!4>3'./'>/13'VV$'&'
f/6-!&;3g'$@' 'UR' 'J4 '
$@$ $@?'? $CT&'$VT?'
' $?RV $RC&@N ', &'
@ ?'&'@U?'? @TC'? U$'&'
C$C'? C$T'&'VN '? V$$V'
V@C'& ? '/'V C&' U@&'
VUC& VT?& ?$@& ?@C?'
?V$&'/J4'
D57*.*'@UN'&
DB2/1'@U/'&
;/(43'? '
4*./(''$RN' '
/450'=&3*'@CR' '
" 'UJO'
f/(&-;*g'@??'fh' '$UV'V'
$TU'& ?$CV ??N, %,.-'
(*3'?$N/'
" 'VT@'

/(4&6*4.&.!/4' /,' =&3*3'
??V !
/(4&6*4.3'$CC'V'
(72*43'A/(32!7'/, 'C$N'&'
(.2(/3'/(' (.2/3'@R$' !$
?? '&
" # $R?'V
f 3!(!3g'VUR' ,
#$ CCT'&
.(*(&'C?R' !'
$ $VV'?

6/4'@$ V
H &*.03'&01 ((!& I 'V?U&'
f7&!4.!4>g' R'? ?V'? CVT'?'
VN@& V@C& VUN'? UNV?'
&;&!4*1*3'$U@'?'
$@?@?
R?'?RU'&'
$$V '?'RVU'&'
X / RN'&'
7&;6!3.(5' UV'
' &672330 '?U$'&'
" &4!725;!'CRR'&'
&4&/2&!3'8 .2*4*9'R$'?'
&4&.2*4&!-' # $
CVC' $??T'?
/ $@? '&'
" $$?V'<'
&41!/0!3'CRR'/'
, $ @N'&'
f7&4*>5(!*g' @@U?' VT?'
CTR'?
H'7!!!!*3 I 'CV '&'
&4/7*03'?VT'?
&72/3'V N'
&7703'UT'&
f7&(&3!.0"3g' T ?'
" ## CCR'?'
7&(-26*4.'?TT'?'
f &((2&3!03g'CCC?'
B&(.2*4/4g'CUU'?'
&(.2*4/3'8 .2*4*9'R@&'
$@ N'?'
" " 8$ VUR'?'
$@ ' $
& /$ $C@'?
i' /,' $
C?T'&
$CN@&'?NU?'
$ R' $CV@'?'
7&5'/,'&-./(3'@N$'&
i' /,' >/=*(4/(3'V@V' $
VVC?
i' /,'KO(!*3'@UR?
i' /,' 6&>!3.(&.*3'RU@'
' /,'7/*.3'VRR'&
i' /,'7253!-!&43'CRR?
' /,' 3/;1!*(3' @@$?'
TN'& '?N &
i' ,/(' .2*&.(*' .!-D*.'
?@/'&'? $'&'
$ - /'&'
" #@$ VT@?'
"8 $$CU'?
7A/ $VU '?
!3!1!-' $$' / '
$V@R?
*;&3>03' ??'&'
7*4&;.!*3'Z '&'$RC? $T&'
$N UU? UT? CN '&'
C?N&'C?R? V &'VC$&'
?NN?
" VR'&'
.7*7;/3g'/,' .2*4*'R$' $
CVC'&
1$ V$@?'
O!&41('?C?

(K.!/4*'CT@'&'
(!(*3'$$'&
*(!6*1*'$$'&
'f *(!7&.*.!-3g'?R?'CR@'&'
, '/,' 15;&O'@ $'&'
'?$U'?'?$R'?'
*(/' R??'?$$?'
" '@ U'&' R$'&'
*.*03'RRT'?
23*&'? @'&' %
<&*44&'$@T'?'
2&*.203&'CU?'&
2&/4'VVU'&
2&5;;03'@?T'?
2*6!03'@$R?
2/(*3" $?U'?'
2!;&6 6/4'?@@'
2!;!7'/,' &-*1/4'R'&'
2!;!77&3' /,' ;6 &;/"
4!-&'RV/
2!;/3/725' N'?' $' $
U?' ??'/' LW $ $ @'?'
$UT? @$@?'@$?? @VR&'
@RVN VC? ? ? ?C?'
CVT&'CU@&'CUT/'CT@'?'
VNV/'V$U?V N? ? N'&'
UNN'&
2!;5(&'$ N'&
2(&3!03'$NV'&'
25;&/203' @@?' R?'?'
25(!/3'L*43'$R '&'
7!>6*4.3'CC?'?'CCR'&'
" '$@R'?'
!4&//.2*-&'V@ '&'
!4&(!!'@RC?'
7!7*3'VNR'?'
!(!.2/03 C??'&
!3&4!'(' 8*7!-' 7/*.9'
@$T'?
' '? U'&'
!.5/-&67.*3'VRR'?'
7<6!7*3' T'&
;&./'CR$'&
7;&.!3.(&(&.(06'8#9'CTU'?'
7;*<*!&43'C?C'&'
7*<!' '$V?'&'
' ?U'?'
('@$$?
, $?R'&'
4*06&.!-'3-2//;'/,'6*1!F
-!4*'VRT?'
'$ R'/''?@U'?'
7/*.(5'&41'7/*.3!' (**D'
$??' @ '&' RN'&'
CC'?'CT'&' ??'?'
TN&'$$$?C'&'
$T?'&@$?'N@@R?'
RN$& VR& RR<'
RT 'V CUU? V?@'&'
VTU&?N@?? ?@;?'
?@T $!
' /6&4'$CN'? N?'&'
CNV RV?? ?N'&'
? '&' ?C'&'?'
RNV CRTV CC$&'
CU '? CUV? CT ?'
V$@& V@$& VU@&'
VRU&?N@'&?$T'&'
? U'&'?R$?
' =' &;3/' /6*15'
(&66' 7!>(&6'
7/3';&6<!-; /*.(5'
&.!(*' (&>*15'
/;*6/4'CU$?'
7/;!-*'UR'/'VU@'&'VT$'&'
/;!4-243'8 .2*4*9'R$?'
CTT?
/;;&'@N/'
7/;5*2(/65'VUN'?

/;5*&3.*'C@$?'
/;5*!103'$T??'
f /;5>4/.03g'CC '&'
<;57-*.*3'C/?'&'
/;K72*!1*3' RU'&'
/;50/'@U '&
/67*!!' 6/3&!-3' &.'
TT' '
/4.'14' &.1'CU'V'
7/(-*;&!4'CNC'?'
/(.2&/4' /(' /(.2*03'
C@ ?
' , '@N'/'
7/(.(&!.'3-0;7.0(*' V??'?'
V?T?
/3!1/4!03' & '
*.-9'?C@?
' 3 ▯['dh '
'V @?
/.!4&'R$T'&
/.!.!!'@RC?
' ['& '$@'&
i' 7(!0,/.4-'@NCV'
V$ '&
i' '@NC'?'R V' '
(3*4*3.*' !0/3&!*' &.'
RT$? CN@'&'
" " 'C$$?'
1 ' " '
$VV'&
- 'VUU'<'
'@NC'&
i' '??$?'
(&O!&3'$U?'?'
f (&!O!.*;*3g'@@??
7 !$5*(3' $R'?'
@!*3.3g'RV'?'T?' '$$@'?'
@$N? @ U? @UNN @TC?'
VN '? VCN'&'VC$'&'VC@'?'
VV '&'VVC'?
W " @ ▯I' C?' '
'TT' '
(//0;!&43' RU?' CN'&'
V$T'&' +'
!'?@CV'
(-*.!8.*'?'?'
f (/6&-2/3g' .2*4*'
@R$'&'CUU'?
7(/7*(.5' :/&;!,./&.!/4'
?UC'&
7(/72*-5' @UN'&' RR?'?'
VR '&
%! %'V$R'?'
7(/3*'3.5;*' @?'?'
7(/3*' &41' 7/*.(5' 6!OF
.O(*'/,'VVR'?'
7(/3*-O.!/43' N'?'V @' '
' R$'/'
1 " 3'$TR'?'
' U?'?'
7(/=!4-*3g'$?@'&'VU?'&
(/=!3!/43'7(!-*3'/,'$RU'&'
C "#!'$?T'&'
: " ▯['TR'?'
(5.&4*&6g'C $?

3&/4'@$?'&
! -' @N@?
./;*6!*3' VV'?
./;*65' 8&3.(/4/6*(9'
UU'&
'RT'&'
7.0(-2&3*' ' ' '
RU@?
&$ $NC?
5;&3'CVV'&
5;!&'CVV'&
5(*4*'$UN'&'
:1 '$RC?'
: " ' UV'&

5.2&>/(*&43'CRN'&'
5.2*&3'@V$'&

(# ' M $
$VCV' C'V'V$@?'
(6
' $LY*!
i' ! 6
$?TN'&

(&-*'-/O(3*'$ U'?'@TR' '
(&-*3' $@R'&'$ U?' @?@&'
@TR'&'C N'&
(*&1!4>3'!4'70<!!/'V V'&'
(A/(13'V'&' '?'?N@&'
(*1';*&1'
(*1'7!>6*4.3'CC '?'
$$$@R'?'
$VUC'V
f(*;!>!/4g'?UV'?'
' A/(D' ?C$?'
?CV'& ' #$
R T?
(*=*4>*'V R' ' '
P " #$ VNC&'V V'V
2/1*3'=&3*3'(/6'??U'?'
CT?'
(256*'!4'7/*.(5'VU@'?'
" #$ $$'&' $CC'&'
T V
G(!.4&;'VCN' '
$VUV'
H' /6&4'!'-&7!.&;'V '/'
/6/;43' &41' *643'
VC ? ? U'&'
#$ VR@?
/./41&' &'CV?' '
/O&4&'$V&'
! " '8(011;*9'CCR'?'
$@VC'?'
(044!4>'@?@'&

! $ WZ $ RCN'&'
VVN'&
" $ # #6
$*.- 'VRC'&'
$$VN'?'
#$?CN'&'
3&!;/(3'$CN'?
X #! "" Q$ VRV'?'
&41&(&-2'CCT'&'
&41(&-03' R?'&'
"# A$ CCT'&
f3&.!(*g' ?C'&
f3&.A(&g'$V '&'
3-&;*'603!-&;'CNU'?'
-&6&41*('?@@'&'
f -*7.!-!36g'CR '?'
3-2/;!&3.3'?&'&'U?&'$TU?'
@V@?' C$&'?R '&'
3-2//;3'/,'6*1!-!4*'CRT?'
/!&3'@N '?
3-!*4-*'?T'&' UU'&' @TN'&'
@T?'&'CTV'?'?@U'&'
-!7!/' &(<&.43'VVU'?'
f3//;!&g'?T' !$ V$C'&' '
" $V@R'&'?UT'?'
f*/&;7.4(*g'&41'3-0;7./(3'
@@' $ @R'V' CN'&' C '?'
?$'&' U'&' U?' $ R@' $
CN @UT'? @RC? @RU?'
RCT? ?T? C$?N C$R?'
K

U$C

G&--/44.'</!D'UNN
'$$R'
-2!;;*3'&41' (!3*!3'CCC'
i' &41' (/!;4>'?U'
' &(6/0('/,''?CC' '
K ;>!4&'-/!4',''$C?'
i' ,!>0(*',(/6'V?C' '
>(!77!4&'@CR'<'
'@?@'
;-6 03'VVU' 2'
;-&6*4*3' 1*3!>4' <5'
C@N
H ;1/<(&41!4! &((!&>*I'
CC?'&
;*0&41*('.2*' (*&.' /!4'
/,''$CU&
&;.&('/,' &(*3' CR'<'
B (! : T ' %'<'
" ('?UU
i' &4&.2*4&!-'CVC'<'
?U$<
H & '@V?'&'
41(/4!*03 5((<*3.*3'
/(/;/>!06'/,''?CR'/'
&4..*'?$U'&
4,,&.*3'A " '@CN'/'
4.!/-2' K/2*'/,'V?R'<'
7/;;/'/4' 6!((/(' TV'<'
i' /,' *4*&V?'<'
i' 3.&.0*..*'$$'/
: " UN'<'
(-*3!;&3' : -'/,''?UN'
(-2' /,' /43.&4.!4*
?V?'&'?VU'<
i' /,' !.03'VV'&
i' (*;!*,',(/6'?VV
i' /,' (&\&4'?V?'
?VU'<
'CU$
(*.203&'8#9'$CU'<'
(6*4./' >/;1' 1(/A4'
,(/6' <
&(6/0(''/,' -2!;;*3'6&DF
!4>'/,''?CC'<
(.*6!3' >(/.*(&' /,,*(
!4>'./'VV@'<
(.*6!3'/4'>*6'@CR'&'
'@C?'<'
&(.!3.' 7&!4.!4>' 3.&.0*'
VU$'<
&3'-/77*($CU'R@T'&'
37&3!/3'>*6'<5'@CU'<'
.2*4*',!>0(*',(/6' >!"
4*.&4' .*67;*'
/,'V?C'<
i' !4' <&..;*' /,'
!&4.3'CUN
i' /4'>*6'@CU'<'
.2*43' -(/7/ 3'C
i' (',(/6'
CVC'<

.2*43'-2/(&>!-' 6/40"
6*4.'&.'R?T'<'
i' -/!4'/,''$C?'&
' 2/7;!.*3 6/40F
6*4.'&.'RNV'<'
i' &(.2*4/4'C?N
i' (/75;3*&'V@@
' 2*3*06'
' /A*(' /,' .2*
!413'&.?CR' '
.;&3'C N'<
.(*43'.(*&30(*"2/03*'/,'
VN<'
'&.' /67*!!'R$N'<'
.(/7/3' TU'<
0>03.03'3.&.4*7,'VUN' '
E E '$CR'<'
E E 1 '!1-./!!/03'$R

'UC'/'
<&(<*('V$$'
&3!2 &'] 7!&'V?'<'
<&3D*.3'/'<'
<&..*(!4>"(&6',!C'
;;(/72/4'C?'<
H' /(>2*3*' ;&1!&./(I'
$?'+
/=!;D*'(*;!*,',(/6'RN'
</0*('@?'&
(!3*!3'CCC

@ '@RR'&
&*(A*4.'<&.23'&.'TC' '
333&('-X44'/,''$CR' '
-&6*/3'@CZ'? ?'<'
" ' ('
?UU
H' &7!./;!4*'1/=*3I'RTT'
&(&-&;;&' !(-/'1!'$ U'<'
i' -/!4'/,' T'&
i' 2*(6)'/,' '<'
(' %%
I' &3.*;;&4!'-!3.&I'?C?'
&3./('&41' /;;00'/4'-/!4'
$CR'&
-&.&70;.'UR'<
*4.&0(3'C@T'
*4.&0(/" (!./4' C$V' <'
?VC'<
(<(03'@?C' 'CU'<'
2!03!'=&3*',(/6'?U$'
-2/(&>!-' 6/406*4.' /,'
53!-(&.*3' ?T'<'
' /,' &' 3.&41&(1"
<*&(*('VR?'&
H' -!3.&' &3.*;;&4!I'?C?'
;./.2/' TU'<
4!103' *6*.*('/,'$UU'<'
-/,,!4'/,'-2!;1'$N@'<'?UT&'
/;/33*06'VC'VV

' /,' /2!=!&'
$VN'<
/43.&4.!4*' (-2' /,'
?V?'/'?VU'<
/(!4.2!&4'=&3*3'??U'&'
: '?UV'
'?UU
i' /6&4' B'&'
(/403' 2*&1' /,' /4'
.2*&.(*".!-D*.'?@V,'
-(/.=4' ,(/6' (6*4./'
?CU?
5<*;*'?C'<'
: -'*6</33*1'?CR
i'/,' (-*3!;&3'?UN
i'/,' 0(!3'?UC
' /,' 072(/4!03'?UR'
B(!&4'-/!4' T'&

1&(!7'$C?'<
&(!&3'/4'6/3&!-'CN$'
" '$CR'/'
5 " " 'VN$'&'VRR&'
d !&4&' /,' *(3&!;;*3I'
% '<
!/45303'V?N'<'VRU'&
i' /4'>*6'@CR'
i' /4'6!(((/' TV<
i' 3&-(*1'.(**' /,
VV$'<
'?$U'<
d' !75;/4'=&3*I'?V?'
' /,' 5(/4'
CNT'&'V?C'&
/1/4&',;0.*"7;&5*('(/6'
@RT'<'?CV'<'
1(!4D!4>'2/(43' /'&'
0(!3' : @'/,''?UC'
15!4>' &0;'V?R
H'15!4>'2*(/I'??C'<

;* .(&'V?T'&
;!3'-/!4',''$@U'<'UNV'
4&6;;*1'3A/(1'RCV' '
72*303' >56 4&3!06'&.'
@?$<
(/ '$@R'<
.(03-&4' 6!(((/' TV' <'
?C?'<
072(/4!03' : '/,''?UR'
0(51!/*'C R'<

Y' &6*3*' 0;;I'$TV'<
H' &6*3*'5 " i'
VN$' V?V'&
H' &00/' -/;;&' 6&/-2!&I'
V?N'&
&03.!4&'/4'-/!4'@?U'<

;&=!&4'&672!.2*&.(*'VC'
VV
/(06' /6&..06' 2
2 ń %
H' (&4-/!3'(&3*I'?U$"

&456*1*' &41' *&>;*'
CR'&
&.*'/,' !/43'&.' 5-*43*'
VN'<
H' *66&' 0>03.*&I'
@CR'<
!&4.3' &..;*' /,' C?T'
CUN CU$
;&1!&./(' H' /(>2*3*I'
$?'&
>;&33' 07'?CU
-&6*/'@C''<'
>(&=*'-/;0644'$N@'<'?U?'<

&1*3'CUR'<
&1(!&4' &03/;*46' /,'
R
&;!-&(4&3303' &03/F
;*06' R@
&(7//(&.*3@CT<' @V&'<
H &(75' 6/4066*4.I'
V?
-&.'CU$
*(&-;*3'$CU'Y'C N'<
*(6*3'CRR'<
i' /,' (&0!.*;*3'V$C<'
V?'?'<
37(!3'CR/'<
37(03'VU@'<
!*(/4'-07'/,''?UV
/(/;/>!06' /,' 41(/'
4!-03' 5((2*3.*3'?CR'/
/(03' @V'&'<
H' /03*' /,' .2*' (&>!-'
/*.I' /67*!!'7&!4.'
!4>',(/6'CCC
(: ' %/
i' ,(/6' 0;-!''??T

-&(03'U'<'
!4D"3.&41'UNN
3303'6/3&!-'/,' &..;*'/,'
CNN'CN$

&403'$CU'&'
0;!&' /64&'
%'<

&-2*3!3'TU'<'
;&1;*3' /B'&

ſ /('.2/3*'-0.3'/4;5'A2!-2'&77*&('041*('&'1!,,*(*4.'2*&1!4>',(/6'.2*,('/A4'.!.;*
U$V

U$?

]

$$C

;&413-&7* ,(/ 6 1533*5
CCU
&7!.2** C@T
: (% ('
;*>!/4&(5 ?@
!/4 &.* VN

&**1/4 -/!4 /, $C?<
$CU &
**4&1 $T <?UV<
&(&.</4 .2* 6/441&.
, <
&(-*;;&3 .2*&.(* /,
%<
&(-03 0(*;!03 -/!4 /,
CR?
i -/;0 6 4/,
VR
&0*4.!43 -!(-03 /,$ U
*103& @CU V? &
;/3 (;!*,,(/ 6 VVU&
6 * 6 /(!&; <03. R$U
4;&03 A!.2 </15 /,
&.(//;03 V?U?N
6*./7*C N<C?@ V?
5-*4&* S5*;/7!&4 A&;;
G &. VN&
i 3A/(1 <;&1*
,(/ 6 ?CV &
" : @VV<

*(/ @CR<
!D* $TR? CC@?
\6 *3 & 6 72!.2*&.(* @TX!
i &:0*10-.&. CR

-*&403 VU@<
1533*5 ;&413-&7* ,(/ 6
CCU
4/6&03 C@T
" : UC
(*3.*3&41 ;*-.(&V?T
(72*03 CCV
.(!-/;! <03. /, L*03
,(/ 6 UNV

B 3*/4!03 1*3!>4 <5 C@T
3*3.06 .*6 7;* /,
/3*!1/4 V$ V@
&4&.2*4&!- @ @
CVC <?U$<
&4&.2*4&!-
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&43& 2/03* /, &. /6F
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+-A '@C?
&(.2*4/4 ,!>0(* ,(/ 6
V?V
*!(!.2/03 @@C<
*;/73 C@T
VR$
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! " " VR$ <
*(!-;*3 $?U &
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2!;!3-03 !4 6*1!.&.!/4
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2/-!/4 3.&.0* /, $ $
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2(5>!&4 ,;0.* @ T
" 2/1!&4 /
!4.&!03 6/40 6*4. /,
VR?&
7;&4 /, -(/7/;!3 C
i (4
i -&6 7 %
i H &3& 1* &7!.*;;!
!>0(&.! I $N
i -!(-03 $ U<
i ;*03!4!&4.*6 7;*
@$$
f0d
i 2/03* ?(**D NT&
i i /6&4 $N&
?TN
3.2 6 !&4 3!.* @U
i ;5 6 7!& C@R
i (/75;3*& ?@@
?N$
i .*6 7;*3 @$$?$U
i .2*&.(*3 ?@
?@U<
(TC<!
i .(!(*6 * ?N@
i =!;;& ?TN
/6 7*!! &;.&(,(/ 6 C <
i &(63 ,(/6 @VV
<&3!;!-& &. T
i <&3"(*;!*, &.
@V?
i H &3& 1* &7!
.*;;! !>0(&.! I
UdS
c &03.!4& /4 -/!4
,(/6 @?U?
i >*63,(/6 @CR
2&!(7!43 *.-
,(/6 @?U<
i 2/03*/, &43&!&.
$N < $$<
i 2/03*!4 ?T$
i ;&1;*3,(/6 /
6!;;,(/6 T@
i 6!((/(,(/6
TV&
i 6/3&!-,(/6 ,,
CNN
i (*;!*,,(/6 ??$<
H .(**, /,
/6<3 I $NC
(&. TC<
.2*&.(* .!-D*.
,(/6 %<
i =*33*;3,(/6 / <

/6 7*!! A&;; 7&!4.!4>3
,(/6 @N$ @C @
CCC CCV CCU VV$
VU$ <?CC<?T$ UNN
H /4!&./A3D! =&3* I ?UU
/4.10 &(1 CR
H /(.;&41 &3* I @CT
/3*!1/4 .*6 7;* /, &.
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S

1 E $CU (
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/6&4 -/!4 $CU
i 6 !O!/>"</A; @TV&
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03.!& 1 " -/!4 /,
@CN&

&<!4& /4 -/!4 @?U? "
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/, VVU
UC &
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V? &
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,!>0(*,(/6 CUU
.(**, /, /623 &.
/6 7*!! $NC
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-*43* ?CV&

5(&-03* -/!4 /, $CU?
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i /, &(&-&;;& V?<
+(L E V ?
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.!-D*. ,0(.2*&.(* ?@V&
?@U
!.03 (-2 /, VV&
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/6<3 3.(**. /, /6""
7*!! $NC
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i 3&-(!,!-* /, ?V?&
.(*&30(*"2/03* /, .(*03
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: " VV$

;7!& &3!;!-& V?

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4;-! =&3*3 ,(/6 ??U&
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]

]&4.203 &(75 6/40F
6*4.& V?

L*.203 &41 6 72!/4
@R&
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i *4.2(/4*1 $ U
/4 -/!4 $CU
.*67;*/, &. ;56F
7!& C@T C N?

□□□

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